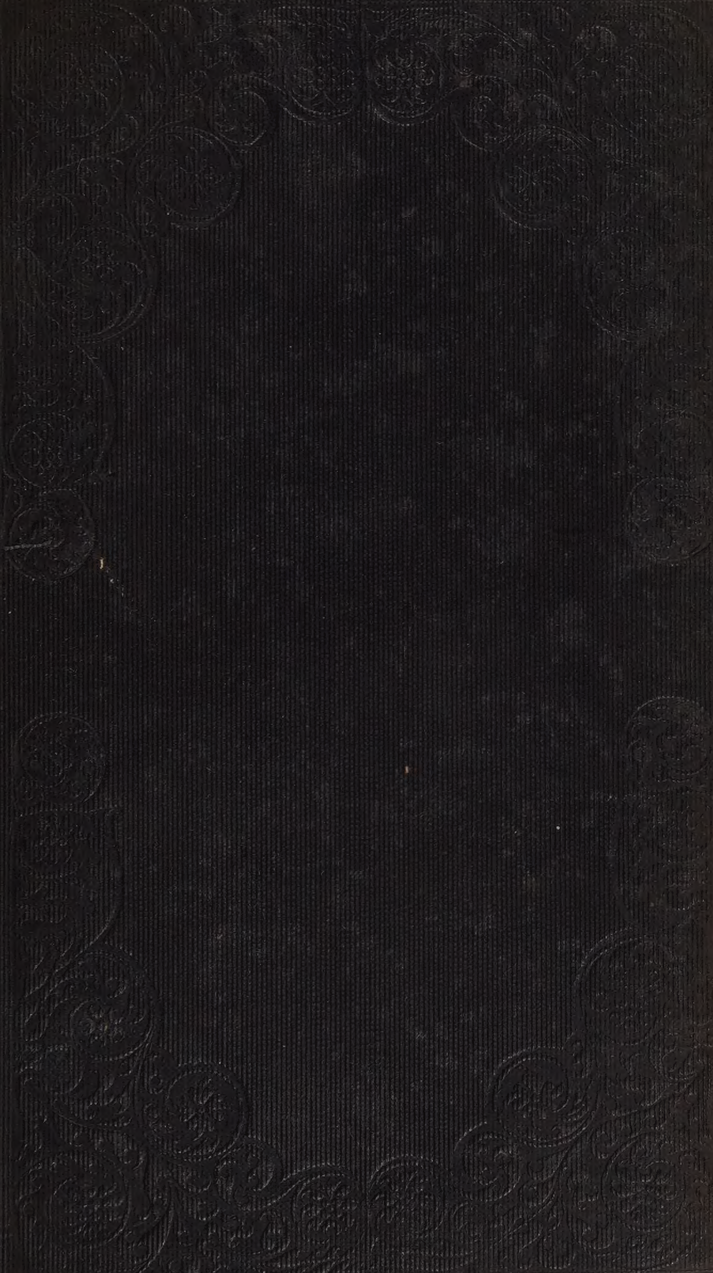


LIBRARY
OF THE
Charing Cross Hospital Medical School.

Case ~~m~~ Y
Shelf ~~2~~ 5
No. ~~2~~

SHL
WITHDRAWN

Digitized by the Internet Archive
in 2026

https://archive.org/details/retrospect-of-medicine_january-june-1851_23

# BRAITHWAITE'S RETROSPECT.

VOL. XXIII. JANUARY—JUNE, 1851.

HOSPITAL

# THE RETROSPECT OF MEDICINE:

BEING

## A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND
PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

W. BRAITHWAITE,

LECTURER ON OBSTETRIC MEDICINE AT THE LEEDS SCHOOL OF MEDICINE,
ETC.

VOL. XXIII. JANUARY—JUNE.
1851.

LIBRARY.
CHARING · MEDICINE

LONDON:
SIMPKIN, MARSHALL, AND CO.
EDINBURGH: OLIVER AND BOYD. DUBLIN: HODGES AND SMITH.

MDCCCLI.

D. I. ROEBUCK, PRINTER, 14, BANK STREET, LEEDS.

# CONTENTS OF VOL. XXIII.

## PRACTICAL MEDICINE.

### DISEASES AFFECTING THE SYSTEM GENERALLY.

| ARTICLE. | | AUTHOR. | PAGE. |
|---|---|---|---|
| 1 | On Leucocythemia, or Blood containing an Unusual Quantity of Colourless Corpuscles .. .. .. | *Dr. John Hughes Bennett* | 1 |
| 2 | On the Different Forms of Fever .. .. .. .. | *— William Jenner* | 5 |
| 3 | Remarks on Continued Fever, and more especially on the Condition of the Brain in Fever .. .. | *— Humphrey Sandwith* | 12 |
| 4 | On Belladonna as a Remedy in Scarlet Fever .. | *— John Gardner* | 16 |
| 5 | Yeast in the Treatment of Malignant Scarlet Fever | *Mr. Bennett* | 18 |
| 6 | On the Degenerations of Different Parts of the System .. .. .. .. .. .. .. .. .. | *James Paget, Esq.* | 18 |
| 7 | On the Nature of the Fibrin of the Blood, and its Relation to Diseases .. .. .. .. .. .. | *John Simon, Esq.* | 24 |
| 8 | On the Disintegration of the Blood.. .. .. .. | *Dr. James Paxton* | 30 |
| 9 | Malignant Tumours or Cancers .. .. .. .. | *Geo. M. Humphry Esq.* | 35 |
| 10 | On the Points of Resemblance between Cancerous and Scrofulous Diseases .. .. .. .. .. | *do.* | 41 |
| 11 | Remarks on Cancer . .. .. .. .. .. .. .. | *Dr. P. Redfern* | 42 |
| 12 | On Encephaloid Disease .. .. .. .. .. .. | *— Charles Kidd* | 43 |
| 13 | Cancer Cells in the Urine .. .. .. .. . .. | *Mr. Balman* | 44 |
| 14 | On Operations for Malignant Growths .. .. .. | .. .. .. .. .. .. .. | 44 |
| 15 | Antiquity of the Use of Animal Oil in Scrofula .. | .. .. .. .. .. .. .. | 46 |
| 16 | On the Treatment of Anasarca, or General Dropsy, by Puncturing the Legs .. .. .. .. .. | *Dr. C. J. B. Williams* | 47 |
| 17 | Rheumatic Fever treated by Acetate of Potash .. | *— Golding Bird* | 47 |
| 18 | On the Treatment of Rheumatism by Lemon Juice | *— G. Owen Rees* | 49 |
| 19 | On the Treatment of Acute Rheumatism by Local Anæsthetics .. .. .. .. .. .. .. .. .. | *— Aran* | 51 |
| 20 | On Erysipelas .. .. .. .. .. .. .. .. .. | *M. Broke Gallwey, Esq* | 51 |
| 21 | On Purulent Absorption .. .. .. .. .. .. | *Samuel Solly, Esq.* | 54 |

### NERVOUS SYSTEM.

| | | | |
|---|---|---|---|
| 22 | On the Pathology of Cerebral and Spinal Softenings, and on the Necessity of Employing the Microscope to Ascertain their Nature .. .. .. .. | *Dr. J. Hughes Bennett* | 56 |
| 23 | On the Diagnosis of Diseases of the Nervous System | *do.* | 60 |
| 24 | On the Pathological Laws which Regulate Diseased Functions of the Nervous System .. .. .. | *do.* | 65 |
| 25 | On the Effects of Stimulus on Disease of the Nervous System .. .. .. .. .. .. .. .. | *do.* | 68 |
| 26 | On Apoplexy .. .. .. .. .. .. .. .. | *do.* | 69 |

| ARTICLE. | | AUTHOR. | PAGE. |
|---|---|---|---|
| 27 | Case of Acute Idiopathic Trismus | *Dr. R. B. Todd* | 70 |
| 28 | Case of Tetanus in an Infant | *— Nevins* | 76 |
| 29 | On the Use of Sulphate of Zinc in Chorea | *Drs. Addison & Barlow* | 78 |
| 30 | Treatment of Chorea by Frictions with Chloroform | *M. Gassier* | 81 |
| 31 | On Convulsive Diseases | *Chas. B. Radcliffe, Esq.* | 81 |
| 32 | On Functional Paralysis | *Edwin Lee, Esq.* | 85 |
| 33 | On Paralysis Agitans | .. .. .. .. .. .. | 89 |
| 34 | On the Influence of Large Doses of Quinine in Neuralgia | *Charles Hogg, Esq.* | 91 |
| 35 | On the Separate Course of Sensation, Volition, and the Involuntary Power, from and to the Brain, the Oblong Medulla, and the Spinal Cord | *Joseph Swan, Esq.* | 92 |
| 36 | Case of Syphilitic Disease of the Dura Mater, and External Periositis | *Dr. R. B. Todd* | 94 |
| 37 | Case exhibiting Cerebral Symptoms without Cerebral Lesion | *do.* | 100 |
| 38 | On the Danger of incautiously Moving Patients in Delirium | *do.* | 104 |
| 39 | On the Physiological Properties of Picrotoxin | *— R. M. Glover* | 104 |
| 40 | On Tartarized Antimony in Insanity | *— Fleming* | 110 |
| 41 | On Brucine in Lead-Palsy | *M. Bricheteau* | 111 |

## ORGANS OF CIRCULATION.

| | | | |
|---|---|---|---|
| 42 | On the Pulse | *Dr. R. B. Todd* | 111 |
| 43 | On the Theory of the Formation of Valvular Diseases of the Heart | *John Simon, Esq.* | 115 |
| 44 | Cause of the Motion of the Blood | *Dr. O'Bryen Bellingham* | 118 |
| 45 | On the Effect of Acetic and Hydrochloric Acids in Protein | *M. Mulder* | 118 |

## ORGANS OF RESPIRATION.

| | | | |
|---|---|---|---|
| 46 | On the Treatment of Pulmonary Consumption | *Dr. John Hutchinson* | 119 |
| 47 | Case of Pneumo-Thorax, with Tubercular Consolidation of Part of the Lung | *— R. B. Todd* | 122 |
| 48 | On Asthma | *do.* | 127 |
| 49 | On Diphtheritis | *J. D. Brown, Esq.* | 134 |
| 50 | On some Chemical Phenomena of Respiration | *Mr. Horn* | 135 |
| 51 | The Pulmometer | *Samuel Hare, Esq.* | 136 |

## ORGANS OF DIGESTION.

| | | | |
|---|---|---|---|
| 52 | On the Treatment of Obstruction of the Bowels | *Dr. Edward Wells* | 137 |
| 53 | On the Absorption of Alimentary Substances, and the Functions of the Lacteals | *M. Bernard* | 140 |
| 54 | Successful Employment of Kousso in Tænia Solium | *William Wills, Esq.* | 141 |
| 55 | On the Preparations of Male Fern, as Remedies for Tape-Worm | *M. Martin-Solon* | 141 |

| ARTICLE. | AUTHOR. | PAGE. |
|---|---|---|
| 56 Schmidt's Remedy for Tape-Worm | *M. Schmidt* | 143 |
| 57 Beneficial Effects of Creosote in the Treatment of Diarrhœa | *W. B. Kesteven, Esq.* | 144 |
| 58 Effects Produced upon the Stomach by Grief | *Dr. Graves* | 145 |
| 59 Chloroform in Lead-Colic | *— Aran* | 146 |

## URINARY ORGANS.

| | | |
|---|---|---|
| 60 Diagnostic and Therapeutic Remarks on Renal Elimination | *Dr. J. S. Sutherland* | 146 |
| 61 Explanatory Observations on the more Speedy Collection and Adjustment of Urinary Sediments—Spontaneous and Artificial,—for Microscopical Examination, and on their more Prompt and Immediate Diagnosis | *— Robert Venables* | 151 |
| 62 On some Varieties of Renal Disease, with Especial Reference to Diagnosis and Prognosis | *— George Johnson* | 160 |
| 63 On the Coincidence of Eclampsia and Albuminuria | *M. Hippolyte Blot* | 165 |
| 64 On the Occurrence of Starch Granules in the Urine, and on the Microscopic Examination of this Secretion | *Dr. Thomas Inman* | 166 |

# SURGERY.

## FRACTURES, DISLOCATIONS, AND AMPUTATIONS.

| | | |
|---|---|---|
| 65 Case of Fracture of the Thigh.—Mr. Wood's Improved Splint | *Mr. Wood* | 167 |
| 66 On the Reduction of Dislocations Generally | *F. C. Skey, Esq.* | 168 |
| 67 On the Reduction of the Dislocation of the Humerus into the Axilla | *do.* | 169 |
| 68 Encephaloid Tumour round the Femur—Amputation | *Charles G. Guthrie Esq.* | 170 |

## ORGANS OF CIRCULATION.

| | | |
|---|---|---|
| 69 Practical Rules on the Suppression of Arterial Hemorrhage | *Prof. Syme* | 175 |
| 70 Aneurism of the Radial Artery | *do.* | 177 |
| 71 On the Method for Making the Incision for the Exposure of Arteries | *F. C. Skey, Esq.* | 178 |
| 72 Exposure of Bleeding Surfaces to the Air, a Means of Arresting Hemorrhage | *do.* | 178 |

| ARTICLE. | AUTHOR. | PAGE. |
|---|---|---|
| 73 Varicose Veins cured by the formation of small Eschars | *F. C. Skey, Esq.* | 179 |
| 74 On the Treatment of Nævi and small Varices | *Dr. B. G. Darley* | 180 |
| 75 On the Subcutaneous Application of the Ligature for Deep-seated Nævi | *John Adams, Esq.* | 182 |
| 76 On the Extirpation of Erectile Tumours by the Cautery | *Dr. Douglas Maclagan* | 183 |

## ALIMENTARY CANAL.

| ARTICLE. | AUTHOR. | PAGE. |
|---|---|---|
| 77 Observations on Hare-Lip | *W. Fergusson, Esq.* | 183 |
| 78 Case of Hare-Lip with a Large Portion of Superior Maxillary Bone Projecting through the Fissure, Cured by Operation | *E. A. Lloyd, Esq.* | 184 |
| 79 Observations on Cleft Palate | *W. Fergusson, Esq.* | 186 |
| 80 Removal of Nasal Polypi | *Dr. D. Mc Ruer* | 187 |
| 81 Teale's Trusses for the Relief of Hernia |  | 188 |
| 82 On Internal Strangulation of the Intestines | *Henry Hancock, Esq.* | 189 |
| 83 Hernia—Operations without Opening the Sac |  | 193 |
| 84 Case of Fistula in Ano | *Prof. Syme* | 198 |
| 85 Remarks on Fistula in Ano | *Bransby B. Cooper, Esq.* | 201 |
| 86 Non-Union after Operation for Fistula in Ano, occurring prior to Admission into Guy's Hospital | *J. Hilton, Esq.* | 202 |
| 87 Congenital Abscess of the Rectum | *J. Erichsen, Esq.* | 210 |
| 88 On Ulcers External to the Sphincter Ani | *John Hilton, Esq.* | 212 |
| 89 On Irritable Ulcers within the Embrace of the Sphincter Ani | *do.* | 214 |
| 90 On the Treatment of Prolapsus Recti | *John Mackenzie, Esq.* | 223 |
| 91 On the Treatment of Hæmorrhoids by Operation | *F. C. Skey, Esq.* | 225 |

## URINARY ORGANS.

| ARTICLE. | AUTHOR. | PAGE. |
|---|---|---|
| 92 On Stricture of the Urethra | *Prof. Syme* | 225 |
| 93 New Instruments for Stricture of the Urethra | *Thomas H. Wakley, Esq.* | 232 |
| 94 Practical Observations on the Treatment of Permanent Stricture of the Urethra | *Robt. Wade, Esq.* | 236 |
| 95 Retention of Urine from Stricture of the Urethra | *Bransby Cooper, Esq.* | 238 |
| 96 Retention of Urine in a Child Twenty Months Old from Injury, Puncture of the Bladder above the Pubis,—Rapid Recovery | *T. H. Wakley, Esq.* | 241 |
| 97 Case of Prostatic and Vesical Calculi,—Lithotomy,—Unusual Position of one of the Calculi | *J. Erichsen, Esq.* | 241 |
| 98 On Lithotrity | *Charles Hawkins, Esq.* | 244 |
| 99 On Hydrocele | *Prof. Syme* | 245 |
| 100 On the Treatment of Pruritus of the Genital, Anal, and Axillary Regions | *Dr. Tournie* | 246 |

## SYPHILITIC AFFECTIONS.

| ARTICLE. | | AUTHOR. | PAGE. |
|---|---|---|---|
| 101 | On Syphilis | *Bransby B. Cooper, Esq.* | 247 |
| 102 | Ulcer in the Groin,—Syphilitic?—Constitutional Treatment,—Cured by Mercury,—Conservative Influence of the Lymphatic Glands | *John Hilton, Esq.* | 251 |
| 103 | On Syphilitic Eruptions | *Thomas Hunt, Esq.* | 253 |
| 104 | Treatment of Gonorrhœa by Chloride of Zinc Injections | *E. A. Lloyd, Esq.* | 257 |
| 105 | Borax as an Application to Gangrenous Buboes | *Dr. Effenberger* | 259 |

## AFFECTIONS OF THE EYE AND EAR.

| | | | |
|---|---|---|---|
| 106 | New Scissors for the Removal of False Membranes from the Eye | *W. R. Wilde, Esq.* | 260 |
| 107 | On Specks and Opacities of the Cornea | *Dr. Robt. Hamilton, &c.* | 262 |
| 108 | Gonorrhœal Ophthalmia | *do.* | 263 |
| 109 | Concentrated Solution of Tannin in Affections of the Eyes | *M. Hairion* | 263 |
| 110 | Notice of the Treatment of certain Cases of Entropion by Means of Collodion | *J. Cummin Toshach, Esq.* | 264 |
| 111 | On the Advantage of Neutral-tint Glasses | *Gilbert Mackmurdo, Esq.* | 267 |
| 112 | New Remedy for Shortsightedness | *Dr. A. Turnbull* | 268 |
| 113 | On the Use of Glycerine in certain Forms of Deafness | *T. H. Wakley, Esq.* | 269 |

# MIDWIFERY,

## AND THE DISEASES OF WOMEN.

| | | | |
|---|---|---|---|
| 114 | On the Distribution of the Nerves of the Uterus | *Dr. T. Snow Beck* | 274 |
| 115 | On the State of the Nerves during Pregnancy | *do.* | 277 |
| 116 | On the Movements of the Uterus | *do.* | 279 |
| 117 | The Cause of the Contractions of the Uterus | *do.* | 285 |
| 118 | Case of Difficult Labour in Consequence of Twins joined by the breast | *— Charles Stuart* | 286 |
| 119 | Account of a Case in which the Cæsarean Section was Performed: with Remarks on the Peculiar Sources of Danger attendant on the Operation | *— Charles West* | 287 |
| 120 | A Case of Cæsarean Section | *— Henry Oldham* | 290 |
| 121 | On Fibrous Tumours | *Geo. M. Humphry, Esq.* | 291 |
| 122 | Fibrous Tumour of the Uterus in Conjunction with Pregnancy | *Dr. Robinson* | 302 |
| 123 | On the Treatment of Remittent Menstruation by Sulphate of Quina | *— Edward J. Tilt* | 304 |
| 124 | Intra-Uterine Polypus, of a Large Size, successfully Operated upon | *— W. F. Montgomery* | 306 |

| ARTICLE. | | AUTHOR. | PAGE. |
|---|---|---|---|
| 125 | An Analysis of 108 Cases of Ovariotomy which have occurred in Great Britain | *Dr. Robert Lee* | 308 |
| 126 | On the Treatment of Ovarian Dropsy by the Production of an Artificial Oviduct | *I. B. Brown, Esq.* | 312 |
| 127 | On Ovarian Tumours | *Dr. Edwd. John Tilt* | 313 |
| 128 | On Ergot of Rye | *— Meigs* | 319 |
| 129 | Twin Birth, in which the Second Child was Born Eight Days after the First | *— Behr* | 320 |
| 130 | Case of Lactation in a Male | *— C. W. Horner* | 320 |
| 131 | The Influence of the Hour of the Day on the Birth and Death of Man | *— Casper* | 320 |
| 132 | History of a Successful Case of Ovariotomy. With a Description of the Morbid Anatomy of the Sac | *W. E. Duffin, Esq. and Dr. R. Lee* | 321 |
| 133 | On Encephaloid Disease of the Peritonæum | *Dr. Snow Beck* | 322 |

# ADDENDA.

| | | | |
|---|---|---|---|
| 134 | On the State of the Blood and the Blood vessels in Inflammation | *Messrs. Paget, Jones, and Simon, &c.* | 325 |
| 135 | On Inflammation, &c. | *do.* | 336 |
| 136 | On Inflammation of the Synovial Membranes of Joints | *Sir Benj. C. Brodie* | 339 |
| 137 | On a peculiar Affection of the Shoulder Joint | *do.* | 340 |
| 138 | On the Removal of Loose Cartilages from Joints | *Prof. James Miller* | 342 |
| 139 | On the Treatment of Aneurism by Pressure | *do.* | 343 |
| 140 | On the Treatment of Periostitis | *do.* | 344 |
| 141 | On the Advantages of an Elastic Convoluted Spiral Bandage, in Varicose Veins and Ulcers of the Leg | *James Startin, Esq.* | 345 |
| 142 | General Remarks on the Diagnosis of Tumours of the Neck | *Dr. P. Redfern* | 349 |
| 143 | On Corpulence, or Excess of Fat in the Human Body | *Dr. Thos. King Chambers* | 351 |
| 144 | On the Best Preparation of Arsenic for Internal Administration, and on the Chemical Composition of Fowler's Solution | *Lloyd Bullock, Esq.* | 354 |
| 145 | On the Use of Arsenic in Lupus | *Thomas Hunt, Esq.* | 357 |
| 146 | On the Exploring Needle and Microscope as Means of Diagnosis | *Prof. Syme* | 358 |
| 147 | On the Treatment of Tetanus | *— Miller* | 359 |
| 148 | On the Treatment of Lead Colic | *M. J. L. Brachet* | 360 |
| 149 | On the Protection of Granulating Surfaces | *Prof. Miller* | 361 |
| 150 | On the Diseases of, and Operations on, the Thyroid Gland | *M. Luigi Porta* | 361 |
| 151 | On the Treatment of Itch | *MM. Bazin and Bourguignon* | 365 |
| 152 | Abortive Power of Collodion on Smallpox | *M. Aran* | 366 |
| 153 | On Iodognosis | *M. Dorvault* | 367 |
| 154 | Cicatrization of an Ulcer promoted by the Electric Moxa | *Bransby Cooper, Esq.* | 368 |
| 155 | Encysted Tumours Treated by Repeated Injections of Iodine | *M. Borelli* | 370 |
| 156 | Ganglion Treated by the Lanceolate Director | *Dr. John Maund* | 370 |
| 157 | On Glandular Enlargements in the Groin and Axilla of Young Persons; Treatment by Caustic Potass | *— B. G. Darley* | 373 |

| ARTICLE. | | AUTHOR. | PAGE. |
|---|---|---|---|
| 158 | Cases of Typhus and Ague treated by Dr. Warburg's Fever Drops | | 374 |
| 159 | New Mode of Administering Cod-liver Oil | *M. Loze* | 376 |
| 160 | Practical Remarks upon Ipecacuanha, with a Formula for the Syrup | *Dr. Edward J. Coxe* | 376 |
| 161 | Professor Mettauer's Aperient Solution | | 377 |
| 162 | The Biberon, a New Feeding-Bottle | *M. Darbo* | 378 |
| 163 | Ammonio-Acetas Ferri and Syrupus Ferri Acetatis | *Alfred Geo. Roper, Esq.* | 379 |
| 164 | On a New Stomach Pump | *Dr. Wilbraham Falconer* | 379 |
| 165 | Case of Successful Administration of the Key-tse-Sing, or Japanese Emmenagogue | *Dr. E. Williams* | 381 |
| 166 | New Preparation of Iron | *Dr. Routh* | 382 |
| 167 | Administration of Iron in Food | *M. Martens* | 382 |
| 168 | Formation of Artificial Milk | *Dr. Panum* | 382 |
| 169 | Cases Illustrative of the Power of the Cold Douche in Promoting and Arresting Absorption | *— C. Sloane* | 385 |
| 170 | Experiments on Absorption—Introduction of Insoluble Substances into the Circulation | *M. Bernard* | 386 |
| 171 | On the Divisibility of Matter | *Dr. Thomson* | 389 |
| 172 | On some of the Causes of Pericarditis, especially Acute Rheumatism, and Bright's Disease of the Kidneys; with incidental Observations on the frequency, and on some of the Causes of various other Internal Inflammations | *— John Taylor* | 390 |
| 173 | Discovery of the Magnetic Properties of Oxygen Gas | *M. Faraday, Esq.* | 396 |
| 174 | Fistula and Hæmorrhoids treated by the Platinum Wire made red-hot by a Galvanic Battery | *—— Marshall, Esq.* | 397 |
| 175 | On the Nature and Treatment of Arsenical Poisoning | *Wm. Odling, Esq.* | 400 |
| 176 | On Fatty Degeneration of the Placenta | *Dr. Robert Barnes* | 404 |
| 177 | On the Treatment of Cases of Syphilitic Lepra | *— R. B. Todd* | 406 |
| 178 | Traumatic Tetanus Cured by simple Local Treatment | *—— Eddows, Esq.* | 408 |
| 179 | On the Structure of the Membrana Tympani of the Human Ear | *Joseph Toynbee, Esq.* | 410 |
| 180 | On the Employment of the Tincture of Cantharides in Obstinate Ulcers | *John Tait, Esq.* | 410 |
| 181 | Case of Pregnancy with Imperforate Uterus | *Dr. Edward T. Roe* | 412 |
| 182 | The Characteristic Peculiarities, Pathology, and Treatment of Rheumatism; more particularly as it is found prevailing within the Tropics | *— James Bird* | 414 |
| 183 | On Burns and Scalds | *Samuel Crompton, Esq.* | 421 |
| 184 | Method of Depriving Quinine of its Bitterness | *Dr. Richard H. Thomas* | 424 |
| 185 | On the Inhalation of various Medicinal Substances | *— John Snow* | 424 |
| 186 | Dutch Liquid as a Local Anæsthetic | *M. Aran* | 430 |
| 187 | On a Newly Recognised Principle in the Induction of Anæsthesia, and on a New Anæsthetic Agent | *Dr. T. Cattell* | 431 |
| 188 | Local Anæsthetic Medication | *— Aran* | 431 |
| 189 | On the Mode of Origin and Propagation of the Epidemic Cholera, in Huddersfield and the Neighbourhood, in the Autumn of 1849 | *— John Taylor* | 432 |
| 190 | The Cholera—What has it taught us? | *W. J. Cox, Esq.* | 438 |
| 191 | Cholera in its Relations to Sanitary Measures | | 442 |

## SYNOPSIS.—INDEX.

## ERRATA.

Page 1, line 5, for λευπὸς, read λευκὸς.
" 1, " 6, for πυτος, read κυτος.
" 110, " 6, for narcotico acid, read *narcotico-acrid.*

# PRACTICAL MEDICINE,

&c., &c.

## DISEASES AFFECTING THE SYSTEM GENERALLY.

### ART. 1.—ON LEUCOCYTHEMIA, OR BLOOD CONTAINING AN UNUSUAL QUANTITY OF COLOURLESS CORPUSCLES.

By Dr. JOHN HUGHES BENNETT, F.R.S.E., Professor of the Theory of Physic and of Clinical Medicine in the University of Edinburgh.

[Leucocythemia is a disease to which we find but little or no reference in medical works, but, like all other blood diseases, may be more common then we have hitherto suspected. Prof. Bennett has given us some most interesting information on the subject.

The term Leucocythemia is derived from the Greek words λευπὸς, white; πυτος, cell; and αιμα, the blood—literally, *white cell blood*, expressing the simple fact, or a pathological state, and involving no theory. The first case of this disease, mentioned by Dr. Bennett, is one discovered after death, with hypertrophy of the spleen, liver, and lymphatic glands. It occurred in a patient admitted under Dr. Christison on the 27th of February, 1845. He was of dark complexion, usually healthy, and temperate. In June, in the previous year, he noticed a tumour in the left side of the abdomen, which increased in size until four months before, when it became stationary. He had not had indigestion or vomiting since he noticed the tumour. On his admission there was a large tumour, extending from the ribs to the groin, and from the spinal column to the umbilicus, lying on the left side. Ordered to have two pills of iodide of iron, morning and evening. On March 1st his urine was of sp. gr. 1013, and the sediment presented cubic crystals under the microscope, it disappeared almost entirely on the addition of liq. potassæ, but was unaffected by nitric acid. He lingered until March the 15th, when he died suddenly in the morning. The following is the condition in which the blood was found at the post mortem examination.]

*Blood.*—The blood throughout the body was much changed. In the right cavities of the heart, pulmonary artery, venæ cavæ, vena azygos, external and internal iliac veins, and many of the smaller veins leading into them, it was firmly coagulated, and formed a mould of their size and form internally. In the cavities of the heart and venæ cavæ, the blood, when removed, was seen to have separated into a red or inferior, and a yellow or superior, portion. The red portion was of a brick-red colour; it did not present the dark purple smooth and glossy appearance of a healthy coagulum, but was dull and somewhat granular on section, and when squeezed readily broke down into a grumous pulp. The yellow portion was of a light yellow colour, opaque and dull, in no way resembling the gelatinous appearance of a healthy decolorised clot. When squeezed out of the veins, as was sometimes accidentally done where they were divided, it resembled thick creamy pus. In some portions of the veins, the clot was wholly formed of red coagulum. In others it was divided into red and yellow. In a few places the yellow formed only a streak or superficial layer upon the red, or covered the latter with spots of various sizes. Whether this coagulum existed in all the veins could only have been ascertained by a complete dissection of the body. It was seen, however, that the femoral veins, after passing under Poupart's ligament, were empty and perfectly healthy as far down as the Sartorius muscle. The external and internal iliac veins, as well as the pelvic veins, were full and distended. The azygos, both axillary and jugular veins, were full, also the longitudinal, the lateral, and other sinuses at the base of the cranium, and veins ramifying on the surface of the brain. In this last situation some of the veins appeared as if full of pus, whilst others were gorged with a dark coagulum. In the aorta and external arteries were a few small clots, resembling those found in the veins. These vessels, however, were comparatively empty. The basilar artery at the base of the brain was distended with a yellow clot.

*Vessels.*—The arteries and veins themselves were perfectly healthy. Although carefully looked for, in no place could thickening or increased vascularity be observed. Nowhere was the clot adherent to the vessels, but, on the contrary, it readily slipt out when an accidental puncture was made in them.

*Microscopic Examination.*—The yellow coagulum of the blood was composed of coagulated fibrin in filaments, intermixed with numerous colourless corpuscles, which could be readily squeezed out from it when pressed between glasses. Where the yellow coagulum was unusually soft, the corpuscles were more numerous, and the fibrin was broken down into a diffluent mass, partly molecular and granular, partly composed of the debris of the filaments broken into pieces of various lengths. The corpuscles varied in size from the 1-80th to the 1-120th of a mill. in diameter; they were round, their cell-wall granular, and presented all the appearance of pus corpuscles. Water caused them to swell and lose their granular appearance, and acetic acid dissolved the cell-wall and caused a distinct nucleus to appear. This nucleus was composed sometimes of one large granule about the 1-200th of a mill. in diameter, at others of two or three smaller granules, as is seen in corpuscles of laudable purulent matter. The red portion of the coagulum contained a smaller number of these colourless corpuscles, mixed with a multitude of normal yellow corpuscles. The colourless corpuscles now described were found in the blood throughout the system. They were seen in the veins and arteries ramifying on the brain, in the coronary veins, hemorrhoidal tumours, and wherever the blood was examined. On stripping off a portion of the pia mater, and examining the capillary vessels of that membrane, all that were not too minute to contain them were found crowded with the same corpuscles. This fact was confirmed by Dr. Allen Thomson, to whom I sent a portion of the brain for that purpose.

[The second case was one occurring in a farm-servant, admitted on the 25th of January, 1850. Had enjoyed good health until twenty months since, when he noticed a swelling in the abdomen, accompanied by some pain. During three months last summer he had lived in the fenny districts of Lincolnshire, but never had intermittent fever. On examining the abdomen a hard tumour could be felt occupying the whole of the left side of the abdomen, emerging from the false ribs on the left side of the ensiform cartilage, to about an inch and a-half above the symphysis pubis. The liver was found to be of the natural size. There was profuse diarrhœa, the bowels being open eight or ten times a-day; this symptom had existed for three or four weeks.]

The appearance of the blood drawn from the extremity of the finger, when magnified 250 diameters linear, is represented in Fig. 1. The coloured corpuscles for the most part have collected together in rolls, the numerous colourless corpuscles filling up the intervening space. Acetic acid dissolved the coloured bodies, and rendered the cell-wall of the colourless ones very transparent—bringing into view the nucleus, consisting of a single round or oval body in some, but in the majority presenting two, three, or even four granules, each having a depression in its centre. Here and there the nucleus was crescentic, or in the form of a horse-shoe. (Fig 2.)

Fig. 1.

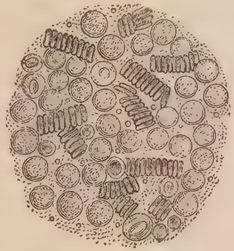


Fig. 2.

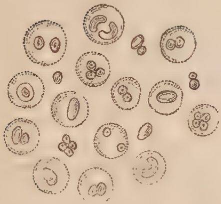


Fig. 3.

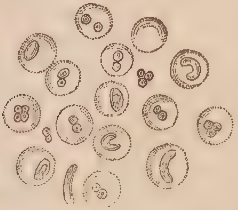


Fig. 1.—Appearance of a drop of blood, magnified 250 dia. taken from Tinlay's finger.

Fig. 2.—The same after the addition of acetic acid.

Fig. 3.—A drop of blood, treated with acetic acid 24 hours after being taken from the arm by venesection.

[On the 7th of August his health was improved, all the ascites had nearly disappeared. The tumour measured transversely thirteen and a half inches, and longitudinally fifteen inches. The circumference of the abdomen at the widest part thirty-four inches.]

This boy was in the Infirmary upwards of six months, and the symptoms and entire progress of the case were watched with the greatest care. Unlike the former case, *the spleen was the only organ enlarged,* the liver presenting its normal dulness on percussion. The abdomen, however, was also the seat of ascitic distension. The smallest drop of blood taken from the boy's finger exhibited, during the whole of his residence in the Infirmary, the excess of colourless corpuscles, and the number of these underwent no perceptible increase or diminution, notwithstanding the varieties of treatment to which he was subjected. Owing to the theories which have been from time to time advanced regarding the functions of the two kinds of corpuscles found in the blood, and of the nature of its colouring matter, iron was the drug which seemed indicated. This boy had also lived in the fenny districts of Lincolnshire; and, although he denied ever having been affected with intermittent fever, it seemed very probable that the enlargement of the spleen was owing to this cause. I commenced the treatment, therefore, with the exhibition of iron and quinine. Other symptoms, however, became so urgent as to demand special attention, and the suspension of these remedies. I allude to the diarrhœa and dyspnœa, the former of which constituted the leading symptom of the disorder during the entire period he remained in the house. All kinds of astringents were given, with occasional temporary, but never with permanent, advantage. At one period he was so exhausted that I expected his death daily for a period of some weeks. He, however, again gained strength; and his bodily powers, except towards the termination of his residence in the house, were subject to considerable variations, evidently dependent on the amount of diarrhœa.

[The fibrin, in this case, was increased to double its amount in healthy blood. The albumen and salts were in normal proportion. The globules were diminished to one-half their proper amount, and the deficiency was counterbalanced by an increase in the amount of water.

In the third case of this disease, which was detected both during life and after death, admitted on the 18th of July, 1850, there were symptoms of bronchitis on auscultation. Heart's sounds natural. Great enlargement both of liver and spleen, indicated by palpitation and percussion. On the microscopical examination of the blood after death, it was found much the same as in the previous cases. The cells of the liver varied considerably in size, and some of them contained fatty granules scattered through them.]

This case, while almost identical with the first, in regard to the morbid condition of the blood, spleen, and liver, and the existence of febrile action, differs from it in several remarkable particulars. There was no tendency to diarrhœa. It is expressly stated that she was generally costive. On the other hand, there was an hemorrhagic tendency,—the skin and some serous surfaces being thickly sprinkled with spots of pur pura, in addition to hæmoptysis and spongy bleeding gums. In connection with these symptoms, we should remark, that the blood was observed to be unusually fluid after death, and that its analysis by Dr Robertson during life showed that, while the corpuscles were greatly diminished in amount, and the water correspondingly increased, the fibrin had undergone no change in quantity, or, if anything, was slightly under the average. The excess of colourless corpuscles, therefore is not necessarily connected with an increase in the amount of fibrin, although here, as in Case II., a remarkable diminution in the aggregate quantity of globules, both white and coloured, existed.—*Monthly Journal of Med. Science, January*, 1851, *p.* 17.

## 2.—ON THE DIFFERENT FORMS OF FEVER.

By Dr. William Jenner, Prof. of Pathology in University College.

[In Retrospect, Vol. XIX., we gave some interesting views of Dr. Jenner on typhus and typhoid fevers. The following remarks, although in many points identical with those already published, contain matter which we did not previously lay before our readers.]

Dr. Jenner strongly maintains that typhoid and typhus fever are diseases which have a totally different origin, and are developed in a different manner; and he considers that they are quite as distinct as measles is from scarlatina. The chief anatomical difference consists of the presence of disease of Peyer's patches in typhoid fever, and its absence in typhus; and it was accordingly found, that while in the former fever these patches were always diseased, in every one of the forty-three cases of typhus fever there was no recent disease whatever.

The diagnosis of these affections during life may be satisfactorily made by an observation of the concomitant eruption. In typhoid fever, it consists of a number of rose spots, of a papular character, slightly elevated, never acuminated at the apex, never flat, but invariably rounded, of a bright rose colour, gradually fading away into the natural hue of the skin, and disappearing completely upon pressure. The eruption accompanying typhus fever, is called a mulberry rash by Dr. Jenner; this eruption is never papular, and consists of very slightly elevated spots, of a dusky pink colour. Instead of disappearing in two or three days, like the rose spots of typhoid fever, the mulberry rash soon undergoes a remarkable change; the spots become of a darker and more dingy colour, and they only fade on pressure: and after exhibiting these characters, they disappear in some cases. In others, however, they reach a third stage, and the spots change into true petechiæ, *i. e.*, spots presenting the following characters: a dusky crimson or purple colour, quite unaffected by pressure, a well-defined margin, and a total absence of elevation above the level of the cuticle. The usual situation of these spots is on the trunk and extremities, but occasionally they are limited to the trunk, and now and then they are observed on the face.

The *tongue* is stated by Dr. Jenner to have exhibited a remarkably different appearance in typhoid and typhus fever. It was much more frequently moist throughout the disease in typhoid, than in typhus fever. When dry, it was often red, glazed, and fissured, in the former; but it rarely exhibited these characters in the latter. In typhoid fever, when the tongue was brown, its hue was of a yellowish brown, instead of a blackish-brown. "The small dry tongue, with red tip and edges, smooth, with pale brownish-yellow fur, fissured, the surface seen between the fissures being deep red, may be considered differentially, as a diagnostic sign of typhoid fever."

In his treatise on the *Identity or Non-Identity of the Specific Cause of Typhoid, Typhus, and Relapsing Fever,* Dr. Jenner draws an analogy between these diseases and small-pox, scarlatina, and measles; and he maintains, that just as the three last diseases, while presenting certain characters in common, are nevertheless essentially distinct in their specific causes, so the three fevers are characterised by differences equally well marked. The rose spots observed during life, and the presence of disease in Peyer's patches seen after death, are peculiar to, and absolutely diagnostic of, typhoid fever: the mulberry rash, often passing into true petechiæ, and the absence of disease in the agminated glands, are characteristic of typhus; while the relapsing fever is distinguished by the recurrence of the symptoms after apparent convalescence.

In answer to the view which has been taken, that typhoid and typhus fever are merely modifications of the same disease, induced by variations of the epidemic constitution, Dr. Jenner maintains that his experience is in direct opposition to such a statement. "I may remark," he says, "that during three years' attentive watching of nearly all the cases admitted into the London fever hospital, in which time there have been epidemics of relapsing fever, typhus fever, and cholera, and, consequently, according to those whose opinions I am here examining, as many changes in epidemic constitution, I have seen no alterations in the general or particular symptoms of either typhus or typhoid fevers, or the lesions observed after death from either, *i. e.*, from November 1846, to November 1849. The cases of typhoid fever, which disease is rarely absent for a fortnight from the wards of the hospital, preserved their symptoms unchanged, and presented the same lesions, whatever the epidemic constitution that prevailed: the same is true of typhus fever. Cases of the latter disease are also rarely absent from the wards of the same institution."—*London Journal of Medicine, January,* 1851, *p.* 64.

[In a letter to the Editor of the 'London Journal of Medicine,' Dr. Jenner further says:]

So far as I am aware, during four years' daily attendance at the London Fever Hospital, I saw not a single exception to the rule, that rose spots are diagnostic of typhoid fever, that is to say, of an affection having for its anatomical character disease of Peyer's patches, and that the mulberry rash is diagnostic of typhus fever; I mean just as far diagnostic of those diseases as are the eruptions of measles, and of scarlet fever diagnostic of those two diseases. I may add, that the experience of 1850 fully bore out the law I attempted to establish in vol. xxxiii of the 'Medico-Chirurgical Transactions,' that the poison of typhoid fever, of typhus, and of relapsing fever, respectively produce only disease identical in essential characters with that from which the poison generating the new disease itself sprung.—*London Journal of Medicine, March*, 1851, *p.* 288.

*On Relapsing Fever.*—[We would recommend our younger readers to pay particular attention to the symptoms and course of what Dr. Jenner calls *relapsing fever*, as their knowledge of this disease may save them some unpleasant *scrapes* into which they may fall, especially when practising in the higher class of patients. Let them bear in mind that in about three weeks from the first attack or about seven days from the *first* convalescence, the patient will probably relapse.]

Relapsing fever affects persons of all ages. The patient, previously in health, is seized, on waking in the morning, or it may be while occupied about his daily avocations, with rigors, sometimes severe, sense of chilliness, and headache, usually frontal. These are followed by heat of skin; and this, again, is frequently succeeded by sweating; the sweating, however, when it occurs, appears to afford no relief. There is soon pain in the back and limbs, frequent pulse, and a dry and hot skin. The tongue is now white, the urine high coloured, the appetite is lost, and there is considerable thirst. The patient passes sleepless nights. Vomiting of green bile is generally one of the earliest spmptoms. The rigors, headache, vomiting, and pain in the back, might lead one to suppose the patient to be labouring under small-pox; but the pain in the back is rarely so severe, nor is the vomiting so incessant as it ordinarily is in the early period of the last-named disease. The headache is seldom so violent as it is in common "bilious headache," in which latter, moreover, it is commonly occipital; the heat of skin and the quick pulse serve still further to separate relapsing fever, at its outset, from that troublesome affection. The suddenness of the attack, the rigors, hot skin, pain in the limbs, and white tongue, distinguish relapsing fever from idiopathic head affections. The patient is generally obliged at once to take to his bed. He feels not exactly too weak, but too ill to keep about; frequently affirms only that he is too giddy to walk; *i. e.*, vertigo, and not sense of weakness, drives the patient to bed. The sudden transition from health to a sense of disease warns him that some severe illness is setting in.

By the second or third day, the heart often beats 100, 120, or even 130 strokes in the minute; the patient gets no sleep; and even by the fifth or sixth day, may be violently delirious. The bowels are usually somewhat confined at the commencement.

After a period varying from five to ten days, a profuse perspiration breaks out, and in the course of a few hours the patient appears nearly well. The alteration is most remarkable: in the morning the pulse may have been 120 in the minute, the skin hot and dry, the head throbbing; in the afternoon the pulse is 60, the skin cool, the head free from pain.

On the following day the patient is apparently, in every respect, free from ailment. His appetite returns, his strength improves, and we suppose him progressing favourably; when, on from the 12th day to the 20th, reckoning from the outset of the illness, or on *about* the 7th, counting from the crisis, the patient having committed no hygienic error, the preceding day having been seemingly in health, or simply weak, is again suddenly seized with rigors, vomiting of green fluid, and headache, quickly followed by hot skin, quick pulse, furred tongue, loss of appetite, and confined bowels; delirium, perhaps, supervenes, and, in fact, he is in the same state as on the day his illness commenced. The pulse, which falls remarkably during the period of apparent convalescence, often beating, the day preceding the relapse, as infrequently as 48 strokes in the minute, rises suddenly to 120, or even higher. After the expiration of two, three, four, or five days, the patient is again bathed in perspiration, and the next day is convalescent.

Such is the ordinary course of a tolerably severe non-fatal case of relapsing fever. But in some cases it presents certain deviations from this, which may be regarded as its normal type. Instead of commencing abruptly, it may make its attack insidiously; *epistaxis* may be among the earliest symptoms, the crisis may be blended by diarrhœa, or loss of blood from the nose, and it is said, but I have never seen such a case, by discharge of blood from the bowels, instead of, as is far more common, by sweating. In women, the catamenial discharge appears, in some cases, to be critical.

The relapse may be very imperfectly marked; a slight, *even now and then only comparative,* increase in the rapidity of the pulse, and a little greater heat of skin than was observed on the previous day, being all that indicates its supervention.

If blood be drawn during the primary attack or the relapse, it is in many cases more or less buffed, and that without the co-existence, so far as can be ascertained, of any local inflammation.

Yellowness of the skin is by no means an uncommon symptom.* The jaundice is sometimes intense; it may be present during the first attack, disappear before the relapse, and not recur; or it may occur only in the relapse. When jaundice supervenes, *the stools retain their natural hue, or are darker than common;* at the same time the urine is frequently loaded with bile.

The skin sometimes has a purplish mottled aspect, an exaggerated resemblance to the skin of young children. Petechiæ are now and then present—flea-bites, which often exist in immense numbers on the trunk and extremities of the poor, have frequently been confounded with them; at the same time the large size in rare cases of the subcuticular effusions of blood, and the fact noticed by some physicians, that they have made their appearance after the patient entered the hospital, prove that they are due in certain cases to a change in the solids and fluids of the body, and not to the bites of insects.

---

* Jaundice is a *very* rare symptom in typhus and typhoid fevers, so rare that I cannot call to mind a single case in which I have observed it, while it is more or less marked in nearly a fourth of the cases of relapsing fever.

*Neither the mulberry rash of typhus fever nor the rose spots of typhoid fever are ever present in relapsing fever.*

Sudden sinking marks the progress of some cases; it is indicated by a deep dusky hue of the face, lividity of the hands and feet, a purple marbling of the whole surface. The trunk feels cool, the hands and feet cold—the patient is in a state of collapse, without having suffered from any severe pain, or exhausting discharge. In such cases he is unable to be aroused, to exhibit any sign of consciousness, and not unfrequently dies in a few hours—generally from twelve to twenty-four—after the physician had supposed him to be free from danger. Death is, however, a rare termination of relapsing fever; when it does occur, the fatal event may take place during the primary fever or the relapse—I think the former has been in my experience more commonly the case.

*Pain in the limbs of a very severe character* is not unfrequent at the outset of the disease, but it has been noticed by several writers, and my own observations are in accordance with their experience, that severe muscular pains sometimes cause considerable suffering after the termination of the primary attack, and also after the relapse, *i. e.*, after the patient is, in all other particulars, in health.

More or less violent delirium is now and then observed, as Dr. Robertson pointed out, after the critical discharge has taken place.

Vomiting, as I have said, is a frequent symptom in both the first and second attack. The fluid ejected is ordinarily bright grass green, and very large in quantity. Sometimes the vomiting is almost incessant, and continues during the whole course of the disease. Tenderness at the epigastrium is a common symptom in all cases, but it is especially marked in those to which I have just referred.

If pregnant women are attacked by relapsing fever, a very large majority, if not all, abort. Death sometimes, but by no means invariably, happens under such circumstances.

A second relapse occurs in a few cases; the patient convalescent about the 7th day, relapses about the 14th; is a second time convalescent by from the 17th to the 21st day; and relapses again from the 21st to the 25th days, for convalescence to be finally established from the 25th to the 28th days. However, in some cases, the disease terminates at the end of a week, the patient experiencing no relapse.

The most frequent local complication, next to enlargement of the liver and spleen, is inflammation of the lung. I have never seen in relapsing fever, any more than I have in typhus fever, an example of meningeal or cerebral inflammation.

Death from uncomplicated relapsing fever is rare. No anatomical character of this disease has been pointed out. The most constant lesion by far is enlargement of the spleen. The size attained by that organ is, I think, on the whole, larger than in either typhus or typhoid fevers. I have found it weigh as much in one case as 38 oz., its size being in proportion to its weight. Pale yellowish pink masses of variable size, firm to the touch, but friable, with a slightly granular fracture, are occasionally found in the substance, and near the surface of this organ. As a rule, there is but little congestion of the lungs, the weights of which contrast singularly with the weights of the same organs in subjects dead from typhus fever. The brain and its membranes, also are remarkably free from appreciable lesion. A slight excess of serosity beneath the arachnoid and in the lateral ventricles is, however, occasionally observed. The blood, in a few cases, has been found fluid throughout the body. The heart offers no appreciable deviation from its normal condition. The liver is generally large, and the gall-bladder contains a considerable quantity of thick dark bile; the ductus communis allows bile to pass freely into the duodenum even in those cases where jaundice was present at the time of death.

The gastro-intestinal, the laryngo-bronchial, and genito-urinary mucous membranes, present all the characters of health. The kidneys are normal.

This description applies only to uncomplicated cases; for, should any local inflammation have been set up during life, the characters of that lesion will, of course, be present after death; thus consolidation of the lung and the signs of recent pleuritis are sometimes detected.—*Med. Times, Dec.* 21, 1850, *p.* 646.

[Dr. Jenner describes another form of fever, which he terms *Febricula.* Its attack is comparatively mild and short. It may be called, perhaps, a *bad cold:* its cause is not specific.

These four different kinds of fevers, viz.; typhus, typhoid, relapsing, and febricula, have frequently been confounded together by the term *continued fever*. It will be very convenient to separate these fevers in our classification and description, and much more satisfactory both in prognosis and diagnosis. They are probably as distinct diseases as measles, scarlet fever, and small pox. Dr. Jenner sums up his views in the following synopsis.]

The four diseases thus attempted to be separated from each other may be briefly thus defined :—

*Febricula.*—A disease attended by chilliness, alternating with sense of heat, headache, white tongue, confined bowels, high coloured scanty urine, hot and dry skin, and frequent pulse, terminating in from two to seven days, and having for its cause excess, exposure, over fatigue, &c., *i.e.*, the cause of febricula is not specific.

*Relapsing Fever.*—A disease arising from a specific cause, attended by rigors and chilliness, headache, vomiting, white tongue, epigastric tenderness, confined bowels, enlarged liver and spleen, high coloured urine, frequent pulse, hot skin, and occasionally by jaundice, and terminating in apparent convalescence in from five to eight days—in a week a relapse, *i.e.*, a repetition of the symptoms present during the primary attack.

After death spleen and liver are found considerably enlarged, absence of marked congestion of internal organs.

*Typhoid Fever.*—A disease arising from a specific cause, attended by rigors, chilliness, headache, successive crops of rose spots, frequent pulse, sonorous râle, diarrhœa, fulness, resonance, and tenderness of the abdomen, gurgling in the right iliac fossa, increased splenic dulness, delirium, dry and brown tongue, and prostration, and terminating by the thirtieth day. After death.—Enlargement of the mesenteric gland, disease of Peyer's patches, enlargement of the spleen, disseminated ulcerations, disseminated inflammations.

*Typhus Fever.*—A disease arising from a specific cause, attended by rigors, chilliness, headache, mulberry rash, frequent pulse, delirium, dry brown tongue, and prostration, and terminating by the twenty-first day. After death.—Disseminated and extreme congestions; in young persons, enlargement of the spleen.

I do not mean to say that in every case of either of these diseases all the symptoms here enumerated will be present, or that, in many cases, other symptoms will not be superadded; but I give the above as the ordinary diagnostic characters of the diseases,—symptoms which, if present, leave no doubt on the mind of the observer of the name of the disease. Just as, if chilliness, succeeded by heat of skin and running from the eyes and nose, and harsh cough, should be followed, on the fourth day, by an eruption of port-wine red spots, arranging themselves more or less crescentically, and then the whole of these symptoms should disappear on from the seventh to the ninth day of disease, no one would entertain a doubt that the patient was labouring under measles; and that, although measles may affect a person, and yet some of the above symptoms be absent; or although, in particular cases, additional symptoms may be present. I intend, then, the foregoing brief descriptions of febricula, relapsing fever, typhoid fever, and typhus fever, to apply to those diseases as much as, but no more than, the above description applies to measles.

As my object was simply to illustrate the different continued fevers of the country, it is only with reference to here and there a point; *e.g.*, the frequency with which the mulberry rash is absent from individuals of different ages affected with typhus fever, that I have attempted to prove any of the statements I have made with reference to the frequency with which particular symptoms or lesions are present or absent, the invariable connexion between certain symptoms and certain changes of structure, &c., &c. At the same time, in some instances, the cases adduced prove the fact they illustrate; the case is at once the illustration and the proof.

At the outset I stated that I should touch but slightly on the question of treatment. This was not from my undervaluing the usefulness of therapeutical agents in some of the diseases here illustrated, but rather because that I felt so much had been written on the treatment of fever,—so often had it been argued *post hoc propter hoc*,—so greatly had some erred, it appeared to me, in substituting general impressions of the efficacy of drugs for rigid logical induction, that I determined to make few therapeutical assertions unsupported by that weight of argument in the shape of facts I knew I had it in my power to adduce in evidence; to arrange and to analyse those facts is a work of time, and the pages of a journal are unsuited for their publication. Such are the arguments that have influenced me in postponing the consideration of treatment—a subject so easy to write on, so difficult to discuss philosophically. But this much I hope the reader will have gathered from these papers; that henceforth, whether the therapeutist speak dogmatically in the loose and easy phraseology of general terms, or, having worked out his results by rigid induction, he lay before his reader the process by which he arrived at his conclusion, as well as the conclusion itself.—I say, whether he intends to load the literature of fever with another *ipse dixit*, or to add a truth to those which have been dug out by constant toil,—whichever be his purpose, he must distinguish from each other diseases having a different origin, a different course, different symptoms, and leading to or accompanied by different lesions, and not confound all under one common name because they possess in certain cases, as common symptoms, a brown tongue, frequent pulse, and loss of general power.—*Med. Times, March* 22, 1851, *p.* 314.

## 3.—REMARKS ON CONTINUED FEVER, AND MORE ESPECIALLY ON THE CONDITION OF THE BRAIN IN FEVER.

By Dr. HUMPHREY SANDWITH, Physician to the Hull Infirmary.

[The correctness of the opinions of Dr. Jenner are, in some particulars, questioned by Dr. Sandwith, of Hull. Louis was the first to appropriate the term typhoid fever to the morbid state which accompanies the lesion of Peyer's glands. And though Andral objected to this, nevertheless, it has been proved by Dr. Jenner, that a rose-coloured rash on the skin is characteristic of typhoid fever, while mulberry spots are equally distinctive of typhus. This last disease is said never to be accompanied by the peculiar enteric lesion marking the former. Dr. Bartlett asserts that there is as much difference between typhus and typhoid fever as there is between measles and scarlatina, an opinion with which Dr. Sandwith does not concur. He says:]

Both are forms of adynamic fever—mere varieties—exhibiting different phenomena under different circumstances, the follicular abdominal lesion generally present in France and America, whilst in England it is comparatively much rarer. "At certain times and places," says Dr. Watson (in other words, in certain epidemics), "the ulceration of the inner surface of the intestines is far less common than in others. It was comparatively rare in an epidemic, of which I witnessed some part in Edinburgh. Then I came to London; and for several years I never saw a body opened after death by continued fever, without finding ulcers in the bowels. More recently, however, and especially during the present epidemic (1838), I have looked for them carefully in many instances that have proved fatal in the Middlesex Hospital, and have discovered neither ulceration, nor any other apparent change in the follicles of the intestines." As additional proof that typhoid and typhus fevers are simply varieties of the same essential disease, of which the *typhoid* form prevails chiefly on the continent and in America, and *typhus* chiefly, though by no means exclusively, in England, it has been observed that on the examination of those who have died of ship-fever, which is an adynamic petechial typhus, the follicullar lesion is generally absent, *and yet exceptional cases of its presence now and then occur.* On the other hand, Dr. William Jenner himself admits, that, occasionally, though very rarely, in typhoid fever with the rose rash, the follicular lesion is wanting. Again, M. De Claubry has proved in a prize essay on the 'Identity of Typhus and Typhoid Fever,' to the satisfaction of MM. Chomel and Louis themselves, that the typhoid fever of M. Louis is the same as the typhus of armies, and equally contagious.

Professor Rokitansky, of Vienna, has developed a still more novel view of the nature of the typhoid affection, or "typhus," as he calls it. His view is that it is a true dyscrasy, or cachexia, and that the pathological process is characterised by the deposition of a peculiar morbid product, which forthwith undergoes a distinct series of morbid changes. "The seat of this process is various, and depends upon the specific relation of the poison of typhus to certain organs. The tissues most subject to this deposition are *the mucous membranes, especially the space between the mucous and the muscular coat, and the mesenteric glands;* and in Austria, at least, where the observations were made, *the mucous membrane of the ileum* is most frequently affected; but it occurs also *in the bronchia and lungs,* and, although very rarely, *in the colon.* This typhus deposit, according to M. Vogel, usually appears as a more or less firm lardaceous mass, of a yellowish or whitish colour, which is deposited in greater or less abundance amongst the normal tissues, gradually softens, and, as the normal elements of the region become also involved in the process, forms ulcers, which either heal by cicatrization, or continue until the death of the patient. In many cases, however, death takes place before the commencement of the softening. The typhous matter, under the microscope, appears to consist of three elements; an amorphous semi-transparent stroma, very minute molecular granules, and large corpuscles, which seem to be imperfect cells and cytoblasts. Histologically, it cannot be distinguished from the deposits that occur in scrophulosis and tuberculosis." The local importance of this deposit cannot be questioned, as many cases terminate fatally from its effects,—ulceration, perforaton of the intestine, &c.

[From the knowledge which we have now acquired, we should rigidly analyze the cerebral symptoms in each case, to endeavour to ascertain whether they are the sympathetic consequences of enteric irritation, or the results of positive organic disease of the nevous centres. We must remember, however, that febrile irritation has often the power to develope constitutional peculiarities of the nervous system, independently of any ascertained local organic lesion.]

We have also to study the prevailing character of epidemic diseases, both as it regards their evident bias to affect one class of organs rather than another, and also as they may assume a low and typhoid, or a high-toned and inflammatory bearing. We must recollect also, that even the same epidemic will undergo a change in its character from the modifying influence of the seasons. "This, however, I am certain of," said the illustrious Sydenham, "from numerous careful observations, that the same method which cures in the middle of the year may possibly prove destructive at the conclusion of it." This observation I have myself verified at St. Bartholomew's Hospital. I have seen cases, with a small and depressed pulse, demanding wine to sustain the heart, and simultaneous local cuppings to free an engorged lung, at one period of the year; and other cases in the same epidemic at another season, requiring the withdrawal of the wine, and even the cautious use of the lancet, owing to their assumption of the inflammatory type, with a sharp and resisting pulse. And here I may be allowed to state my decided conviction, that a great change has lately, and especially during the choleraic constitution of the atmosphere, come over the nature of fever, and, in a less degree, over inflammatory diseases in general. This is no new thing. Fifty years ago puerperal fever, according to the united testimony of all the best writers of that period, would not bear bleeding or active purgation. Then followed a change in the seasons, which, according to the experience of Dr. Gordon of Aberdeen, Mr. Hey of Leeds, Dr. Armstrong of Sunderland, Dr. Campbell of Edinburgh, and others, demanded the most heroic depletory measures. I myself witnessed, and put on record, two epidemic maladies, typhus and scarlet fever; the former in 1819, and the latter in 1832; both of which required active depletion, both general and local. Since that period we have witnessed the recurrence of a depressing constitution of the atmosphere, which absolutely forbids all active lowering measures. On the contrary, so weakened are the vital powers, more especially in fever, that if we use the lancet we almost certainly destroy the patient; while leeches themselves sometimes render recovery difficult, or impossible. In short, a conservative treatment, consisting of the judicious combination of quinine, cordial diaphoretics, diluted wines, and good broths, commenced very early in the course of the disease, promises more success than any other, and seems to sustain the function of nutrition, as well as to obviate those local congestions of the brain, and other organs, which appear to steal on our patients, from the loss of the *vis a tergo* in the heart and arteries. Sydenham, also, bids us attend to the type of contemporary diseases; adding, that the character of a fever "may often be sufficiently known by carefully attending to other diseases." Nor need I remind my readers how much, in ordinary seasons at least, a man's condition, situation, and circumstances, will often modify the complexion of a fever. "A well-fed and previously healthy soldier, who has no cares, will in general have a high-toned fever; whereas a poor, ill-fed, and badly-clothed, labouring man, worn out by cares and anxieties, and living in an ill-ventilated and filthy apartment, will be affected with one of an opposite character."

In other adynamic and malignant forms of fever, we can understand with Dr Watson how the stupor is occasioned by the poisoned blood, and not by effusion in the brain, and we cannot, therefore, hesitate, in such cases, to administer cordials. In these adynamic forms of fever, Dr. Copland strongly recommends the chlorate of potassa, and Dr. Watson prescribes a solution of it in water, in the proportion of a drachm to a pint, as a drink. He states, that under the use of a pint, or a pint and a half of this solution daily, he has noticed, in many instances, a speedy improvement of the tongue; which, from being furred or brown and dry, has become cleaner or moist. At the same time, bearing in mind the depressing influences, with which our patients have to struggle, we give stimulants at the proper time, and with a bold hand. The knowledge, again, that the fibrin of the blood is diminished in typhus fever, and that the blood is doubly poisoned by an excess of urea, in addition to the specific miasm, will confirm us in the necessity of sustaining the vital powers, and of avoiding, as much as possible, all lowering agencies. Now and then, indeed, we meet with cases, in which life is so completely overwhelmed by the depressing miasm, as to hold all our efforts at defiance. For sporadic cases occasionally arise, of so unusually malignant a character as to defy all the resources of medicine. Thus, a few years ago, I was called to a family in Holderness, plunged into great distress from the sudden invasion of the farmer and his wife by what seemed to be a typhus poison; which proved fatal to them both within two days. The wife first fell ill, and was moribund when I saw her, with both her lower extremities cold and livid as high as the knees. Her husband had then, also, been seized a few hours, and was almost pulseless, with petechiæ in various parts of the body, insatiable thirst, parched tongue, and other febrile phenomena. There were neither the symptoms of cholera, nor those of poisoning, nor could they be traced to deleterious vegetable or animal food. Every attempt to sustain the sinking powers, in both these cases, proved wholly nugatory.

Instructed, however, by another class of important facts, we shall not blindly take for granted the absence of cerebral engorgement or arachnitis; but, admonished by the proved occurrence both of stray cases of cerebral lesion in epidemics characterised mainly by disturbance in other organs, as well as by the occasional predominance of brain affection in certain epidemics, we shall be on the look out for the possible occurrence of such lesion, and give every case of equivocal aspect the benefit of a most rigid analysis from time to time. M. Rostan's conjecture too is worth considering, who suggests the possibility that inflammation of the brain and its envelopes may be induced by a special cause, as by animal matters in a state of putrefaction. We must note the tone and character both of the epidemic we have to deal with, and of contemporary diseases. We must bear in mind the importance of an early and anticipatory treatment, should cerebral lesion be actually pending. It is remarked by Dr. Graves, in reference to a case of intensely violent maculated fever, which, on account of head symptoms, had been leeched early, and the whole scalp blistered on the *fifth* day, and blistered again as well as the nape on the *eighth* day, that "*on the ninth day* the cerebral symptoms, *which we had been endeavouring to anticipate*, came on, but probably our treatment prevented them from being fatal; for when they appeared, the application of tartar emetic ointment induced a purulent discharge from the whole surface of the twice-blistered scalp, in the course of a few hours, and three grains of tartar emetic, given in divided doses that day, procured a complete cessation of the symptoms, after"—mark, after—"*the pupils had been dilated, and one fit of slight paralysis of the mouth and tongue had taken place.*" It would be foreign to my purpose, and superfluous, to sketch all the symptoms of menaced cerebral lesion; I may notice, however, one on which Dr. Graves lays great stress. "On the morning of the eighth day," he says, in reference to a certain case, "we observed that every now and then he *respired irregularly*, as if repeatedly and gently sighing,"—a variety of respiration often indicating a disturbance of the nervous system, and which I have repeatedly observed as a precursor of cerebral excitement, and to which, consequently, I have been in the habit of drawing the attention of my pupils, under the name of *cerebral respiration.—London Journal of Medicine, Feb.*, 1851, *p.* 129.

## 4.—ON BELLADONNA AS A REMEDY IN SCARLET FEVER.

### By Dr. John Gardner.

[Belladonna has been chiefly used as a *prophylactic* where the poison of scarlet fever was likely to be effective. But it has not often been used when the attack has commenced. Some authors have pronounced it decidedly prophylactic, and others, among whom is Dr. Pereira, have doubted this power. It is very justly argued, that twenty cases of failure are more conclusive than hundreds of non-occurrence of the disease after its exhibition. Dr. Gardner supposes that as belladonna was recommended by Dioscordes as a remedy in erysipelas, the analogy of the two diseases must have led many men to employ it in scarlet fever. He says:]

The analogy of scarlet fever in its malignant form with erysipelas, together with our knowledge of the powerful and peculiar influence of belladonna on the nervous system, render it worthy of a full and fair trial. Accordingly, I proceeded to try it, giving it in efficient doses, and taking care that the preparation I administered was in a proper state. The latter precaution is at all times necessary, because, while the extract, if properly prepared and preserved, is highly efficient, it is often found in the shops, either from being badly prepared originally, or from long keeping, wholly inert, so that half an ounce has been given for a dose without any effect. Happily, we have a very excellent and easily applied test for the activity of the extract of belladonna; a grain or two rubbed on the eyelids should, in a minute or two, produce full dilatation of the pupil.

In all my cases up to the present time, I have used extract of belladonna, which was prepared at Apothecaries' Hall, some four or five years old, but it acts immediately on the pupil whether applied externally or taken into the stomach.

Without reckoning slight cases of scarlet fever and sore throat, I have treated upwards of thirty cases with symptoms more or less grave, by means of the belladonna. In very many of these I should formerly have entertained no hope of seeing the patient pass through the attack, the approach of the disease being marked by a malignant aspect. I need not enumerate the peculiar symptoms which characterize fatal scarlet fever—these are well known to every practitioner. In the absence of the belladonna, I have watched with great anxiety these fatal tokens; they allow little room for our anticipations being negatived. But with the belladonna I have not yet met with a fatal case.

Moreover, it is well known, that in no inconsiderable proportion of cases; whether severe or slight, very inconvenient sequelæ occur on the subsidence of the fever. arthritic pains, œdema of the extremities, anasarca, and even hydrocephalus. In no case treated with belladonna have I met with such sequelæ.

I administer the belladonna according to the ability of the patient to bear it, in doses of half a grain to a whole grain every three, four, or six hours, dissolved in water; the dilatation of the pupil and the amount of stupor produced, being the basis of discrimination. I do not allow low delirium even from the first, nor indeed any other symptom, to deter me from giving belladonna, but I give no other medicine whatever, except an occasional dose of castor oil to secure a daily action of the bowels.

There is, of course, no objection to the concurrent use of other items of treatment, removal of the hair, cold affusion over the head, and sponging the limbs and body if it can be borne, gargles of the chlorides or mineral acids, &c.; but I depend little on any of these.

The diet I have usually recommended has been bread and milk, never depending upon mere farinaceous foods, so as to withdraw all, or most of the nitrogenous principles from the food, a practice I believe to be fraught with danger.

Making every allowance for the many sources of fallacy necessarily incident to the uses of a remedy under the circumstances of this example, I know nothing in the whole compass of medicine in which I have more confidence. I have recommended this plan of treating scarlet fever to several friends, and their reports of its effects have been uniformly favourable.

It would be out of place here to enter upon speculations as to the *modus operandi* of the belladonna, or any other collateral topic relative to the disease; my present object being simply to state the results of my own experience of the power of belladonna, and to request, on the one hand, any of my readers who may have fallen on the same plan to publish the results they have observed; or on the other, to recommend the trial to those who have not hitherto employed it, without regarding the folly of the homœopathists.

In conclusion, I would suggest that to obviate the uncertainty necessarily attendant upon the use of the extract of belladonna, the alkaloid atropine, or some of its salts, should be tried. The sulphate of atropine is, perhaps the best. It is soluble in water, stable, and in every way manageable. I have not, however, at present prescribed this salt.—*The Institute, Jan.* 4, 1851, p. 2.

Mr. T. J. Green, of Peckham, corroborates the communication of Dr. Gardner, as to the value of belladonna in scarlet fever. He observes,—

"The preparation I have used for ten years is the Apothecaries' Hall powder; the colour, aroma, and virtues of this, will, in a dark green bottle, keep for years. The dose I have always given to persons above puberty is one-sixth of a grain in mint water, every four hours. For children I rub one grain with five grains of powder of liquorice root, and of this give one-sixth or one twelfth of a grain in water, every four hours. For infants it should be used in extremely minute doses, as it sometimes, in my opinion, brings on spasm of the larynx, and kills the child. A gargle of the sulphate of copper, one grain to one ounce of warm water, or camphor mixture, used every hour, is very good."—*The Institute, February* 1, 1851, *p.* 88.

5.—*Yeast in the Treatment of Malignant Scarlet Fever.* [Mr. Bennett, of Gateshead, states that he has found the administration of fresh yeast of the most invaluable advantage when the symptoms are of a malignant character. He says:]

After ammonia, the mineral acids, chlorate of potash, &c., have failed, and the application of nitrate of silver besides, one or two table-spoonfuls of fresh yeast *frequently given* (according to the age and malignancy of the case) has, in my practice at least, been quickly efficacious as an antiseptic and stimulant.—*Medical Gazette, January* 10, 1851, *p.* 84.

---

## 6.—ON THE DEGENERATIONS OF DIFFERENT PARTS OF THE SYSTEM.

By James Paget, Esq.

(From a Review of Mr. Paget's Lectures on Inflammation in the British and Foreign Medico-Chirurgical Review.)

The history of the degenerations of lymph constitutes one of the most important parts of the whole pathology of inflammation. As Mr. Paget has justly remarked, degeneration is a part of the regular series of nutritive operations; for "to degenerate and die, is as normal as to be developed and live; the expansion of growth, and the full strength of manhood, are not more natural than the decay and feebleness of a timely old age,—not more natural, because not more in accordance with constant laws, as observed in ordinary conditions.

The study of development has always, however, had precedence in the choice of all the best workers in physiological science) and that of degeneration has been scarcely at all pursued. What little has been done in this department, has had reference solely to the human body; and "almost the only essays at a general illustration of the subject have issued in the ridiculous notion, that as the body grows old, so it retrogrades into a lower station in the scale of the animal creation." The study of the changes of natural degeneration in old age is important, as affording a basis for the interpretation of many phenomena, which are to be regarded as morbid rather in their prematureness than in their essential nature; and these are grouped by Mr. Paget under the following heads:—

1st. *Wasting* or *withering*, as in the ordinary emaciation of old age; some parts being entirely removed by absorption, whilst others are only decreased in size, and lose the succulency of earlier age.

2nd. *Fatty degeneration*, as shown in the tendency to the accumulation of fat in many tissues, especially the bones; the *arcus senilis* of the cornea has been shown by Mr. Canton to possess this character; and the fatty degeneration of the arteries of the aged is well known to be a most ordinary occurrence.

3rd. *Calcareous degenerations*, as shown in the gradually increasing proportion of earthy matter in the bones, in the ossification of parts that remained cartilaginous during the period of vigour, and in the tendency to earthy deposits in the arteries and other parts.

4th. *Pigmental degenerations*, as shown in the gradual accumulation of black pigmental matter in the lungs, the mucous membrane of the alimentary canal, and even in the coats of the arteries.

5th. *Thickening of primary membranes*, as seen in the tubules of the testes, the inner membrane of the blood-vessels, and the walls of cartilage-cells.

The following are enumerated by Mr. Paget as the characters in which true degenerations are distinguished from disease:

"1st, and before all others, it should be a change naturally and usually occurring, in one or more parts of the body, at the approach of the natural termination of life, or, if not then beginning, yet then regularly increasing.

"2. It should be a change in which the new material is of lower chemical composition, i. e., is less remote from inorganic matter than that of which it takes the place. Thus, e. g., fat is lower than any nitrogenous organic compound, and gelatine lower than albumen, and earthy matter lower than all these.

"3. In structure, the form should be less developed than that of which it takes the place: it should be either more like inorganic matter, or less advanced beyond the form of the mere granule or the simplest cell. Thus the approach to crystalline form in the earthy matter of bones, and the crystals in certain old vegetable cells, are characteristic of degeneration; and so are the granules of pigment and of many granular degenerations, and the globules of oil that may replace muscular fibres or the contents of gland-cells.

"4. In function, the part should have less power in its degenerate than in its natural state.

"5. In its nutrition, it should be the seat of less frequent and less active change, and without capacity of growth, or of development."

There are many things which show that the assumption of these characters is to be ascribed, rather to a defect, than to a perversion of the vital force or of the conditions of nutrition:

"Thus (*a*) these are all apt to occur in a part of which the functions are abrogated; a motionless limb wastes or becomes fatty as surely as an old one does. (*b*) They often occur, too, in parts that fail to attain the development for which they seemed to be intended. Thus, e. g., fatty degeneration usually ensues in the cells of unfruitful Graafian vesicles. (*c*) They bear also a certain general analogy to the changes that ensue in some of the materials that are habitually excreted from the body; in the construction or composition of which materials one seems to have an instance of the gradual supervention of the ordinary or imitable processes of chemistry. (*d*) Again, they display living parts tolerating the presence and incorporation of inorganic or dead matter; fat being commonly infiltrated about degenerate cells and membranes, and earthy matter with it, even in the crystalline form. (*e*) And lastly, and perhaps most clearly, the origin of degenerations from defective, rather than from perverted, conditions of nutrition, appears in the fact that one, at least, (namely, fatty degeneration), of them may be produced artificially."

The degeneration of lymph may commence at any period after its formation: and that which most obviously determines it, is the continued suspension of the conditions of nutrition. We shall first speak of its *fibrinous* element. In the *first* place, this may waste or wither, becoming firmer and drier, passing into the state which Rokitansky has called "horny;" the fibrin in these cases shows no marks of development into tissue, but retains its ordinary structure, being only drier and more compact. *Secondly*, fibrin is subject to a degeneration, which is comparable to the fatty degeneration of ordinary tissues; this is an extremely frequent occurrence, presenting itself in the fibrinous effusions poured out in the lower forms of inflammation, or in those of cachectic individuals. The softening and disintegration of the clots within the heart, which Mr. Gulliver has described, correspond closely with the like processes in inflammatory lymph. The whole substance is seen to be dotted with granules, which are known to be oil-particles by their peculiar shining, black-edged appearance: and the fibrin, no longer rendered transparent by acetic acid, loses its toughness and elasticity. It appears to be usually by such a degeneration, that fibrinous matter, which has firmly coagulated, softens and becomes capable of absorption:

"I suppose it may be considered as a general truth, that the elements of a tissue cannot be absorbed so long as they retain their healthy state. There is no power of any absorbent vessels that can disintegrate or decompose a healthy portion of the body: for absorption, there must be not only an absorbing power, but also a previous or concurrent change, as it were a consent, in the part to be absorbed: so that it may be reduced (or, rather, may reduce itself,) into minutest particles, or may be dissolved. And this change is probably one of degeneration, not death, in the part; for dead matter is rather discharged from the body than absorbed.

"Now there are some facts which indicate the probability that the fatty degeneration is that which commonly precedes the natural absorption of many normal parts; or, rather, that, in the change which they undergo before absorption, fatty matter is one of the products, and that the principal evident difference between the atrophy of a part which is manifested by its wasting, and the atrophy which is manifested by fatty degeneration, is, that the fatty matter, which is absorbed in the former case, is retained in the latter. However this may be, it is certain that the disintegration and fatty degeneration of the fibrin-products of inflammation bring them into a state most favourable for absorption; indeed, one may see in fibrin thus changed many things which, in regard to the fitness for absorption, make it parallel with chyle. Of such absorption of fibrin we may find many instances. In rheumatic iritis we may believe the lymph to be fibrinous; but we see its complete absorption taking place; and the recent observations of Dr. Kirkes on the rarity of adhesions of the pericardium, in comparison with the frequency of pericarditis, may be in the same manner explained. In rheumatic pericarditis we may be sure fibrin is effused; and the observed friction-sound has, in at least one case, proved its coagulation; yet in this case, when death occurred four months afterwards, scarce a trace of fibrin was, found in the pericardium: it had been absorbed, and the degeneration I have been describing was probably the preparation for its absorption."

*Thirdly*, examples of the calcareous degeneration of fibrin are shown in the ordinary formation of phlebolithes from clots of blood, and in the calcareous deposits which are found imbedded in the fibrinous vegetations of the valves of the heart. This form of degeneration, however, is much more frequent in purulent fluids, and in later developments of lymph. *Fourthly*, pigmental degenerations are often seen in the fibrinous lymph effused in peritonitis, which presents shades of gray and black, that are due to the presence of pigmentary granules.

A similar series of degenerations is seen in the *corpuscular* elements of lymph. *First*, their withering is seen in certain elements of the dull ochre-yellow-coloured, and half-dry material contained in lymphatic glands that have undergone chronic and nearly stationary scrofulous enlargements. In this substance are found abundant collapsed and shrivelled cells, which might be supposed to be dried pus-cells, or corpuscles of chronic tuberculous matter, were it not that some of them present an approach to the character of fibre-cells, into which it is certain that neither pus nor tubercle-cells are ever developed. The corpuscles found in the pus of chronic abscesses, are believed by Mr. Paget, from their likeness to the foregoing, to be rather withered lymph-corpuscles, than true pus-cells. *Second*, the lymph-cells are changed by fatty degeneration into granule-cells, or exudation-corpuscles; which, as Reinhardt has shown, may also be derived by a similar process from the primary cells of almost all other, both normal and abnormal, structures. This form of degeneration is particularly apt to occur in the products of inflammation in the nervous centres and in the lungs, but it is by no means confined to those organs; and it may take place alike in the early forms of lymph-cells, and after they have already elongated and attenuated themselves into fibre-cells, and also after they have degenerated into pus-cells. The following are, briefly, the stages of this transition, which corresponds exactly with that so commonly observable in the cells of the liver and kidney:

> "The lymph-cells, which may have at first quite normal characters, such as I have assigned to 'primordial cells,' present a gradual increase of shining black-edged particles, like minute oil-drops, which accumulate in the cell-cavity, and increase in number, and sometimes in size also, till they nearly fill it. The fatty nature of these particles is proved by their solubility in ether: and their accumulation is attended with a gradual enlargement of the cell, which also usually assumes a more oval form. Moreover, while the fatty matter accumulates, the rest of the contents of the cell becomes very clear, so that all the interspaces between the particles are quite transparent; and, coincidently with all these changes, the nucleus, if any had been formed, gradually fades and disappears."

This kind of degeneration, as in the case of the fibrinous element, appears to be preparatory to absorption, as probably happens in the "clearing-up" of the solidified lung after an attack of pneumonia. The calcareous degeneration of the lymph-cells is not so often seen, but sometimes presents itself coincidently with the preceding; of the pigmentary degeneration we have a very common example in the colouring of the cells of bronchial mucus already referred to.

The most frequent of all the degenerations of lymph, however, is into *pus*, this change ensuing in nearly all cases in which the lymph is placed in conditions unfavourable for its development. That such a change does take place, there can now be no doubt, since every gradation can be seen, from the most characteristic form of lymph-cell to that of pus-cell; and it is very questionable whether pus is ever, what it was so long undoubtingly regarded, an original or primary product of inflammation. "We cannot," as Mr. Paget observes, "always discern a preliminary lymph-stage; but neither can we always distinguish lymph-cells from pus-cells, nor can we see in how very brief a time the transformation may be accomplished." Other rudimental cells, besides those of the lymph, may be so altered as to take on the appearance of pus-cells; thus, in many of the supposed cases of pus in the blood, the bodies taken for pus-cells were certainly only altered white corpuscles. When it occurs as a product of inflammation, however, the pus-cell may be pretty safely regarded as an ill-formed or degenerate lymph-cell; and the variety of form which it will present will partly depend upon the previous quality and grade of development of the lymph-cell, and partly on the further degenerations which may have taken place, after the characters of the pus-cell have been acquired. The following is Mr. Paget's account of the typical conditions of the pus-cell; and of the principal degenerations which it may undergo:

"In specimens of what might be called 'good' pus, we may find three principal forms. There are—1st, some corpuscles presenting the peculiar and well-known granulated or wrinkled appearance of pus-cells, but from which water will raise up no cell-wall; 2, from others, like these at first sight, water will raise a cell-wall, and will show that the former kind consist of only such a substance as forms the contents of these; 3d, in others, even when no water is added, a cell-wall is visible, and within this are granulated contents, with a more or less distinct nucleus imbedded in them. In all these forms, moreover, the addition of acetic acid usually displays a single or a bipartite or tripartite nucleus. Now, it may be that these represent three different stages of the pus-cell, either developing, or, more probably, degenerating; but I think it is much more likely that these forms are the results of the purulent degeneration beginning in lymph-cells at different stages of their development. There is so remarkable a correspondence between these three varieties of pus-corpuscles, and the three chief forms which I described as observable in the development of the primordial cell of lymph, that one cannot but suspect that the three forms in the pus represent corresponding and similar degenerations from the three forms in the lymph.

"When once formed, the pus-cells, if they are retained within the body, have no course but to degenerate further; it is characteristic of their being already degenerate, that they can neither increase nor develope themselves. The various corpuscles found in pus, besides those I have already mentioned, must find their interpretation in these degenerations; for the pus-cells are prone to all the degenerations that I described as occurring in the lymph-cells.

"*a*. They may wither, as in the scabbing of pustular eruptions, or in long-retained and half-dried strumous abscesses.

"*b*. Or, they may be broken up, whether before or after passing into the fatty degeneration, which is one of their most common changes, and in which they are transformed into granule-cells. It is this breaking-up into minute particles which, probably, precedes the final absorption of pus.

"*c*. Or lastly, both the cells and the fluid part of the pus may alike yield fatty and calcareous matter, and this may either remain diffused in fluid, or may dry into a firm mortar-like substance.

"It is to such degenerations as these, in various degrees and combinations, and variously modified by circumstances, that we must ascribe the diverse appearances of the contents of chronic abscesses and the substances left after their healing."

But the same kinds of degeneration may occur in the products of inflammation after they have advanced further towards complete organisation. Thus adhesions not unfrequently degenerate by wasting, seldom or never by passing into the fatty state; but very commonly by becoming calcified, the product having sometimes an approach to the character of true bone, but much more frequently having the earthy matter deposited in an amorphous form, as if, as Rokitansky has remarked, it was a residue of the transformation of the more organised tissue whose soluble parts have been absorbed after decomposition; and, lastly, by developing pigmentary matter, which is sometimes seen in adhesions of the pleura, but much more commonly in those of the iris.

Such, then, according to Mr. Paget, are the principal forms of degeneration exhibited by the more or less developed products of inflammation. We consider that he has done good service in thus attempting to classify them, and to point out the direction for further inquiry. The whole subject of degenerations may be regarded, in fact, as of even more pathological importance than that of development; and deserves the fullest investigation. For it is the essential character of by far the greater number of morbid processes, that the nutritive material is applied to some purpose different from its regular destination; and that the product is, in relation to the normal one, of a degenerate kind. And even where an attempt is made (so to speak) to develop a normal structure, as in the organisation of lymph thrown out for the repair of injuries (whether produced by external causes, or by the morbid actions of tissue itself), that structure, until it is fully adopted into the system and made completely a part of it, is peculiarly prone to undergo degeneration. Now it has been from dwelling upon this very frequent destiny of fibrinous exudations, and from passing by the cases in which they do remain as constituent parts of the organism, that Mr. Simon has been led to the notion that fibrin is itself a degenerating product. It may be that the last-named instances are the exception rather than the rule; but this is because, in all ordinary cases in which these exudations are thrown out, causes of degeneration are operating. It is in those simplest cases in which the reparation proceeds with the least amount of those disturbing influences which tend to produce degeneration,—as, for example, in the reunion of the two ends of a tendon after subcutaneous division,—that the organisation of the fibrin goes on most after the fashion of ordinary nutrition, and with the most complete result; and we seem, therefore, clearly entitled to affirm, that of all the elements of the blood, the fibrin is that which is the most prone to become organised, and is that which affords the ordinary pabulum for the development of the tissues.—*Brit. and For. Med.-Chirurg. Review, April,* 1851, *p.* 487.

---

## 7.—ON THE NATURE OF THE FIBRIN OF THE BLOOD, AND ITS RELATION TO DISEASES.

(From a Review of Mr. Simon's Lectures on this subject, by the Editor of the Brit. and For. Med. Chirurg. Review.)

[One of the most important opinions in pathology lately advanced, is that of Mr. Simon and Dr. Zimmerman, viz., that "the Fibrin of the Blood is not to be regarded as its most organizable portion, but as an element resulting from the *degeneration of the tissues,* and destined to speedy elimination from the circulating current," in opposition to the opinion commonly received among physiologists, viz., "that Fibrin is that ingredient of the blood, which, in the ascending scale of development, stands next for appropriation into the living textures of the body, and which represents the ripeness, perfection, and nutritiveness of the blood." The reasons Mr. Simon advances in opposition to the commonly received doctrine that fibrin is the most organisable and nutritive part of the blood, are as follow:—]

"First, I find that fibrin is undiminished by bleeding, however frequently repeated; nay, that it often, or even usually, increases under this debilitating treatment: its highest figure given in Andral's book (10·2) was at a fourth bleeding: and Scherer found it as high as 12·7 at the third venesection in a case of pneumonia. I find that under many other circumstances of exhaustion and weakness and inanition, during the progress of starvation, during diseases essentially anæmic, during violent fatigue, and the like, its proportion has been found at least as high, perhaps higher, than in the inflammatory process. And as in these respects I find its proceeding to be in direct contrast to that of the red-globules (which we know to be potential elements in the blood, and which are at once reduced by bleeding or starvation), so also do I find a similar contrast in another striking particular. Messrs. Andral and Gavarret, in the course of their extensive researches in the comparative physiology of the blood, ascertained that an improvement in the breed of an animal tended always (*cæteris paribus*) to increase the proportion of its coloured blood-corpuscles; they found that the same improvement tended likewise to diminish the proportion of its fibrin. And I find further indications of the same inverse ratio between the fibrinousness and the perfection of the blood, in the facts—that there is little or no fibrin in the blood of the fœtus, none in the egg, none in the chyme, and less in the blood of the carnivora (who feed on it) than in that of the herbivora.

"Some of these facts, derived from very different sources, appear quite inexplicable on the theory that fibrin is essential to the progressive development of the tissues: and the opposite inference seems unavoidable, that it must be considered an excrementitious product, derived from the waste of the tissues or the oxidation of the blood, and in progress of elimination from the system. This conclusion, carried into the domain of pathology, would lead us to suppose, that an augmented proportion of fibrin in the blood (whether occurring in active disease, or within the limits of apparent health) can be taken as an indication only of increased labour and waste in certain elements of the body, not of an increased development in the resources and nutrition of the blood. And on the same grounds it would appear that a super-fibrination of the blood, in acute inflammatory diseases, must be regarded as a consequence and effect of those diseases, not as their cause, and not as a primary affection."

Again when speaking on a subsequent occasion, of the ulterior development of fibrin. Mr. Simon remarks:

"It appears, then, that fibrin may remain stationary, and be nourished; or it may degenerate and decay: thus much is certain. But, may it advance? may it be developed into any higher form? into any tissue?—Notwithstanding the prevalence of a very general opinion to the contrary, I believe I may venture to question its possession of this power, and may say, that I entertain extreme doubt whether, of itself, it ever shows the slightest disposition to cell-formation, or to any process of self-development.

"Unfortunately, our opportunities of watching its solitary behaviour are very few; for, in almost every instance that can be thought of, albumen (which is probably the real regenerator of the tissues) is likewise present; and that great developmental activity, so often and so glowingly ascribed to fibrin, may, with at least equal probability, be considered the work of this associated albumen, for (on this latter assumption) the fibrin could merely be considered to furnish an inert mechanical support. For think, if fibrin were that restless element of growth and vital expansion which some have fancied it, what a world of activity there would be in an aneurismal sac! A large aneurism, filled with laminated clot, has almost as much fibrin in it as the whole body put together; and yet it shows, on microscopical examination, no evidence of activity or of growth. At its circumference its pressure may have irritated surrounding parts, and may have provoked inflammatory effusion from them, but in the interior all is stationary and quiet. Towards the cavity, where the formation is most recent, lie the blood-corpuscles in a net-work of fibrin—the former in such numbers, that the latter can but very imperfectly be seen; but in passing outwards, as the corpuscles seem more and more wasted, the fibrin begins to show more distinctly, always adapting its meshes to the material within them so that innumerable blood-cells are seen, each in its separate setting of fibrin: in getting still nearer to the circumference of the sac, the arrangment becomes confused from the closer consolidation of the fibrin; but in no part of the structure have I been able to see any trace whatever of new organisation.

"There is a similar reluctance to the initiation of organic development in those other intra-vascular clots which form in tied arteries. They undergo changes referable to their blood-corpuscles, and they become pale and contracted; but their fibrin may remain for many weeks, or perhaps permanently, unaltered, except for some increase of density. I have seen it after the lapse of six weeks, showing only a vague appearance of longitudinal striation, with no essential change of physical character, and without the slightest trace of new development in its substance."

And after alluding to Dr. Zwicky's observations on the metamorphosis of arterial clots into fibrous tissue, which he considers as depending on "some new influence being imparted to the clot by the prolongation of blood-vessels into its substance, much more than on any specific faculty of organic development residing in the fibrin itself," he continues:

"I do not wish it to be understood as, in my opinion, a proved and certain thing, that fibrin is insusceptible of ulterior development; but I find, as yet, a want of sufficient evidence to establish its possession of this power; and in the examination, both of intra-vascular clots and of inflammatory exudations, I find several facts which apparently militate against such a conclusion. In all such products, the fibrin has shown itself either stationary or retrogressive; either lying as first deposited, or contracting more and more densely; or altering, only to undergo degradation. So far as my knowledge extends of adhesive inflammation, and of the several reparative processes, I see no evidence that fibrin takes a more important part in them than that of holding the true albuminous blastema within its meshes, and thus occasionally serving as a provisional matrix and scaffolding for the development of cells, fibres, and blood-vessels, and I cannot but suspect, that those who have ascribed to fibrin so large a share in the processes of growth, have been somewhat under the influence of that prejudice to which I alluded in a former lecture, and have promoted this material to so high a rank in their pathology, merely because of its physical tendency to settle in a solid form."

[These opinions of Mr. Simon are answered as follows by the Editor of the 'British and Foreign Medico-Chirurgical Review.']

1. "Fibrin is undiminished by bleeding; nay, it often, or even usually increases under this debilitating treatment." This only proves that the process, whatever be its nature, on which the generation of fibrin depends, is not checked by loss of blood, a fact which affords no indication whatever that the fibrin is a product of disintegration. If the fibrin be, as we believe, that element of the blood which is most directly and constantly required for the maintenance of the nutritive operations, it is easily conceivable that the All-wise Creator should have placed this process out of the reach of those accidents which affect the proportion of other less important elements of the blood; just as the action of the heart is entirely withdrawn from the control of the human will, and the respiratory movements are provided for by an instrumentality over which it can exert but a subordinate influence. Let it be remembered, that if fibrin be (as we believe) albumen undergoing vitalization, its *material* will always be ready, so long as there is any albumen in the blood; and if (as seems not improbable) the very act of circulation through the living tissues is one means whereby the vitalizing influence is exerted,

this will be perpetually going on, so long as the circulation continues. It must be borne in mind, too, that a new supply of fibrin, as well as of albumen, is introduced into the blood after every act of digestion; for there is distinct evidence that fibrin is generated (at the expense of albumen) during the passage of the chyle through the lacteals; and if the researches of M. Cl. Bernard are correct the liver exerts a similar elaborative agency upon the albuminous matter which has been received into the blood of the vena portæ. Further, in all the cases alluded to by Mr. Simon, a very active inflammation was somewhere going on in the system; and thus, according to the current doctrine, an unusually active production of fibrin was taking place at the expense of the albumen of the blood. If not generated from this material, but resulting (as Mr. Simon thinks) from the disintegration of the tissues, how is it that in an attack of pneumonia, or of acute rheumatism, in which there is no reason to suppose that any extraordinary disintegration of tissues takes place, the proportion of fibrin in the blood mounts up to three, four, or five times its normal average?

2. "During diseases essentially anæmic, during violent fatigue, and the like, the proportion of fibrin has been found at least as high, perhaps higher, than in inflammation." We very much question whether, in any of these cases, the increase in the proportion of fibrin took place without the presence of the inflammatory condition. Every one knows that inflammatory complaints are peculiarly liable to occur when the system is imperfectly nourished: and Andral distinctly states, that in the three dogs which he submitted to experiment, two of them being wholly deprived of food, and the third partially so, the elevation in the proportion of fibrin from 2·3, 2·2, and 1·6 parts, in the three individuals respectively, to 4·5, 4, and 3·3 parts, was *coincident with inflammatory changes in the stomach.* Further, as in these diseases "essentially anæmic," there is no reason to suppose that a peculiarly rapid disintegration of the tissues is going on, we cannot see how the increase of fibrin in the blood of patients suffering under them, is in the least degree confirmatory of Mr. Simon's doctrine. That the deficiency of nutrient material does not prevent the generation of fibrin out of what the blood contains, may be explained, as we have just shown, in a manner very different from that which Mr. Simon would have us adopt.

3. The argument founded upon the comparative amount of fibrin in different breeds of animals, as determined by the observations of Andral and Gavarret, can scarcely be admitted to have much weight, when it is recollected, that the breeds here spoken of were *herbivorous* animals, to which it is natural to possess *more* fibrin and fewer corpuscles than the carnivora, and that they were *domesticated* animals, in regard to which the phrase "improvement of breed" often means something very different from an increase of the general vigour. We can fancy that a stall-fed cow, yielding her eighteen quarts of milk daily, would be regarded by the farmer as a much more valuable animal than a hardy mountain cow affording not one third of that quantity; but the latter is well known to be the one possessing the greatest amount of vigour, and to be the least susceptible of disease. It is, in fact, the object of the breeder to produce a state of *artificial plethora;* and this condition, as is

well known, is characterised in man by an increase in the proportion of red corpuscles, without any corresponding increase, or even with a diminution, in that of the fibrin of the blood. If we extend our observations on comparative physiology a little further, we find that the red corpuscles, which Mr. Simon affirms to be "potential elements" of the blood, are altogether absent in the lowest known animal of the vertebrated sub-kingdom (we allude to the curious little *amphioxus* or lancelet,) and that scarcely any approach to them is presented through the whole invertebrated series, notwithstanding that among some of these there is an extraordinary amount of vital activity; consequently we cannot help looking upon their presence as connected with some function which is to be specially, if not exclusively, performed by the vertebrata. On the other hand, the presence of fibrin is universal; and its proportion in the blood is found to bear a close relation to the formative activity, in cases in which this is subject to periodical variations. Thus Mr. Newport found, that in the larva of the insect, at the period immediately preceding the exuviation of the skin and the formation of a new integument, the blood is extremely coagulable; whereas for some little time after this process has been performed, the blood is so deficient in coagulability, that it does not (as at other times) close the orifices of wounded vessels, —as if in consequence of the temporary exhaustion of the plastic material by the new production of the tegumentary tissue. In the pupa state, during which the formative activity is the greatest, and the disintegration of the living tissues must be reduced to its minimum by the complete inactivity of the animal the coagulability of the blood is great. But in the imago state, in which little or no further growth or development takes place, and in which, on the other hand, the activity of movement might be expected to produce an unusual disintegration, the plastic element seems to be almost entirely withdrawn.

4. "Further indications of the same inverse ratio between the fibrinousness and perfection of the blood," are found by Mr. Simon in the facts, "that there is little or no fibrin in the blood of the fœtus, none in the egg, none in the chyme, and less in the blood of the carnivora (who feed on it) than in that of the herbivora." We are at a loss to see what possible argument can be drawn from any of these facts, except the first; and of this—the absence of fibrin in the blood of the fœtus—we must take leave to express a doubt. Mr. Simon does not cite his authority for the statement; and it is entirely opposed to all we know of the condition of the blood in other organisms, in which formative actions are going on energetically, —as in the larvæ of insects, which may be regarded as embryoes fitted to maintain an independent existence, and to procure and ingest their own food. The albumen of the egg does not stand in the relation of blood, but in that of food, to the chick; this food has to be assimilated by the nutrient organs before it can be converted into solid tissue; indeed, it would seem to be the special purpose of the germinal membrane to convert this raw material into the plastic circulating fluid. To advance the absence of fibrin in the egg, therefore, as an argument for its non-essentiality in the blood, is just as unsatisfactory an argument as it would be to say, that because fibrin is not to be found in bread or milk, its presence in the blood has no relation to the

nourishment of the tissues. Mr. Simon does, indeed, make a near approximation to this absurdity, in advancing the absence of fibrin in the *chyme* as one of his "indications." But what does he say to the presence of fibrin in the *chyle;* to its progressive increase in proportion as the chyle advances along the lacteals, and more especially after its passage through the mesenteric glands; and this under circumstances which almost exclude the possibility of attributing its first presence and subsequent increase to the introduction of any disintegrating material,—to anything, in short, but to that assimilating operation which prepares the chyle for the part which the blood is to perform, and gradually converts it into a liquid which is fit to circulate through the sanguiferous system? We are equally astonished that Mr. Simon should think that the difference in the proportion of fibrin in the carnivora and herbivora, taken in connexion with the nature of their food, furnishes any support to his views. Surely he must know full well, that the fibrin of muscular flesh is reduced back to the state of albumen in the digestive process, and that there is no difference between chyme formed from animal food and that produced by the digestion of vegetable substances, except that which depends upon the different proportions of its protein-compounds, its oleaginous matters, its saccharine and other constituents. So long as the food supplies albuminous matter in adequate amount, so long the proportion of fibrin in the blood is capable of being sustained; and, as we have just now remarked, we can see no reason why it should not be sustained, until all the albumen of the blood is exhausted. What is the explanation of the larger proportion of fibrin in the blood of herbivora than in that of carnivora, we do not pretend to say; but Mr. Simon's theory does not help him to accounting for it, since he will scarcely maintain that the disintegrating processes are more rapid in the former group than in the latter,—the very contrary, indeed, appearing to be the fact. It is to be remembered, however, that little reliance can be placed upon the numerical proportion of this or any other of the elements of the blood, in estimating the share which it takes in the formative processes. If the current doctrine be correct, there is a continual production of fibrin, and as constant a removal of it from the circulating current by the formative operations taking place throughout the body; and the amount which circulates in the blood may be considered as a sort of "floating balance," which affords no indication of the magnitude of the two sets of transactions which it serves to accommodate.

Such are the merits, in our apprehension, of the principal arguments assigned by Mr. Simon for abandoning the orthodox doctrine, and embracing the heresy newly imported from Germany. We trust that we are as much inclined as Mr. Simon to exchange old errors for new truth, provided the latter can be brought to our understandings; but we must be satisfied it *is* truth, before we abandon for it the doctrines that have been current among physiologists and pathologists ever since they began to reason correctly on such subjects. Of the objections which he raises to the current notions, on the basis afforded by the history of the ulterior development of fibrin, we shall not now stop to point out the fallacies.—*Brit. and For. Med.-Chirurg. Review, April,* 1851, *p.* 172

## 8.—ON THE DISINTEGRATION OF THE BLOOD.

### By Dr. JAMES PAXTON, Rugby.

[It seems that the circumstances which take place in this world, whether of a political or religious character, obey a certain order of arrangement. They occur, as it were, in *cycles*. This is especially the case with respect to opinions. We are rapidly again ascending to that point of humoral pathology which was maintained by our ancestors hundreds of years ago; but with this difference, that by means of our superior instruments, and other facilities of acquiring knowledge, we are able to give better reasons for our belief in certain theories. Among the most interesting subjects of inquiry in the present day will be found to be the Blood in its various phases of development, integrity, and decay. The following paper by Dr. Paxton is one of the most interesting and comprehensive which we have perused.

Numerous inspections of the blood in a defective state have led to the arrangement of a group of diseases, strictly referred to a disturbed state of the circulation, producing either a transposition or total rejection of some of the vital elements. Dr. Paxton first considers the leading principles in a branch of hæmatology specially relating to *privations of the blood*. He says:]

I have adopted the term *disintegration* as most expressive of a dissociation of a triple compound of serum, fibrin, and hæmatosin. During sound health these organic elements are retained in the vascular system. The chemical products, or some contingent or new forms of organic matter only, are excluded by means of the secretions. In fact, to have any of the organisms of the blood present themselves, ex-circulatory, is opposed to the laws of the integrity of the circulating fluid, and would at once induce suspicions of a disorganization in its composition. We might bring under review a large class of diseases which seem to originate in disturbances of the organic elements, but will confine our notice to those affections in which the vital forces expel some of these constituents. One of the most remarkable instances of this is the expulsion of serum in *morbus Brightii*. Here the blood becomes deprived of its serum; on the one hand, a part escapes into the cavities and the tissues of the body, while another part is removed by the agency of the kidneys; on the other hand, there are diseases in which the gastro-enteritic apparatus is employed in the performance of a similar task, viz., to deserumize the blood; as in diarrhœa and cholera, wherein a double process is effected —first, a portion of the blood is deserumized, and secondly, it is discharged from the constitution. In other instances the serum, after its exclusion from the vessels, is detained in close cavities in the pleura, the tunica vaginalis, or in cysts. In such situations it is liable to remain with great inconvenience to the functions of important viscera. When deposited in the areolar tissue of the limbs, I need not say that their mechanism is exceedingly impeded. This is a general view of that species of disintegration which is known by a loss of serum. Although the objection might be raised that these fluids are mere secretions or exhalations, this is altogether a verbal distinction, inasmuch as the blood is minus the quantity of albumen contained in the fluids just named. To confine myself to a limited exemplification of deserumization: It may be artificially induced by the application of a blister to the skin.

The poison of the cantharides inflicts an injury, which ends in an effusion of serum under the epidermis, the blood having been deprived of as much serum as is visible in the vesication. Superficial burns and scalds subject the locality to rapid withdrawal of serum. Certain topical injuries cause topical disintegration of the blood, and an effusion of serum. Obstructions in the veins invariably produce a disengagement of serum. Thus the pressure of the gravid uterus, or of pelvic tumours on the iliac veins, frequently occasions effusion in the lower extremities. In phlegmasia dolens, by an inflammation of the saphena and its branches, or of the femoral vein, the current of the blood being interrupted, exudations into the cellular tissue certainly follow. The fluids in œdema, hydrocephalus, hydrothorax, or of hydrocele, prove their identity with the serum of the blood, by the albumen which, more or less abundantly, they contain. The pathology of limited dropsy or abstractions of serum appears scarcely explicable without admitting a dissociation of the liquor sanguinis and the red corpuscles. In cachexia the vessels may be feeble, *per se*, and incapable of transmitting the blood unimpaired, yet in leucophlegmatic temperaments it is more than probable that effusions originate in excess of serosity, and the escape of serum tends to afford relief by restoring, in some measure, the hæmatic standard. This is illustrated in an early scrofulous diathesis, where, in childhood, there is a disposition in the cerebral circulation to part with serum. The fluid which distends the ventricles of the brain contains albumen. Serous apoplexies likewise are of this character, notwithstanding the attack may arise from detention of blood in the sinuses, owing to disease of the heart. Taking into account the composition of the fluid in partial dropsy, and calculating the amount of albumen detected in it, we may conclude there must be partial disintegration of the blood. Nevertheless, structural and functional derangements of the vessels, as well as their contents, may be involved in local dropsy. Hence mechanical causes, or a ligature on the femoral artery, will occasion a temporary œdematous tumefaction, in consequence of an interruption to the current of the circulation. One of the results of an impediment in the portal system is a collection of serum in some part of the body. Instances of limited disintegration of the blood could easily be multiplied, but I will only mention its manifestation in œdema of the arm, when the axillary glands are implicated.

Limited collections of serum constitute the first series of disintegrations of the blood The second series shows an unlimited serous effusion; its remote cause is more obscure than the former, and it is by a combination of circumstances that its integrity is not maintained. Anasarca is one of the effects of a slow process of general disintegration of the blood, and general exudation of the liquor sanguinis and colourless corpuscles. Already an example of this form of deprivation of serosity has been referred to in albuminuria, where there is an excessive tendency of the serum to separate from the mass of the circulation. During the progress of this disease the liquor sanguinis is continually escaping by the kidneys, or is infiltrating into the areolar tissue, and perhaps finds its way into the pleura or peritoneum. Under these circumstances it has been ascertained that the relative proportion of corpuscles no longer continues. In one case the hæmatometer indicated 47 per cent. of serum, with a specific gravity of 1015, the healthy standard being 1030. To explain this circumstance I found, at the commencement of the complaint, the urine contained so large a quantity of serum, that when heated, it was completely solid. The development of albuminuria is discovered by the unceasing circulation of the vital energies to exclude a quantity of serum from the vascular canals. Pathologists have apprehended a mutilated state of the blood; if so, it is desirable to define that state with as much precision of ideas as science will warrant. Dr. Johnson, of King's College, very properly considers that the existence of albumen in the urine is due to a disturbance in the circulation. Dr. Ranking, with his usual clearness of judgment, after a comprehensive review of the various publications on Bright's disease, arrives at the following conclusion, that "there are diseases which attack the liver, spleen, and kidneys, which depend on an abnormal condition of the blood." All the changes described so accurately by microscopists as taking place in the interstitial structure of the tubuli of the kidney are purely accidental, and altogether the result of "albuminous dyscrasy," induced by intemperate habits, unhealthy residence, or modes anti-hygienic. The tendency of the serum to become ex-circulatory can the more readily be accounted for by supposing that incidental circumstances have contributed to a loss of cohesion dependent on a loss of vital affinity in the sanguineous elements. While the blood preserves a perfectly healthy condition, its organic principles are inseparably retained within the boundaries of the circulatory system. There is no exception to this law. When, however, the renal organs, whose office is solely to secrete and convey the chemical material, is compelled to assume a new office, and convey a physical material of the blood, and when also we detect the latter in remote and foreign situations of the body, we may expect to find a corresponding deficiency in the circulation. As we find a low specific gravity of serum in albuminuria, so we ought to feel no difficulty in believing what some of the most enlightened pathologists have conjectured, that this affection is essentially a disease of the blood. It does not appear that the kidneys are anything more than mere agents in the removal of albumen, and in the performance of that duty sustain damage from retention of fibrin and fat globules; indeed, the quantity of urine is seldom to be attributed to an error of these organs, but is rather to be imputed to a disturbed state of organic principles in other places. The granular degeneracy is entirely the result of protracted serous disease. Dr. Prout, in his Gulstonian lecture at the College of Physicians, exhibited the kidneys of a patient of Dr. Rowe's, who died of albuminuria which were perfectly free from disease. They transmitted serum without injury to their capacity or structure. Albuminuria consequently arises from a lesion of the blood, capable of demonstration. There are a variety of causes, particularly in large cities, which are calculated to impair the sound state of the blood. Dr. Bright instituted a series of experiments by taking the patients promiscuously as they lay in the wards of the hospital. The whole number amounted to 120, out of which he found no less than eighteen to have coagulable urine. I am in the daily habit of testing the urine, but I confess I do not find albumen of so frequent occurrence. In rural districts, among an agricultural population, the condition of the blood is less deteriorated. Dr. Owen Rees and others have detected albumen in the urine of persons dying from complaints quite unconnected with lesions of the kidneys. He judiciously observes, that, "it is not right to lay much stress on albumen in the urine as indicative of nephritic disease." The term albuminuria would be equally applicable to every species of disorder in which there is an adventitious collection of serous fluid; it might be applied to all the diseases in the order *Aquosæ* of Cullen. Every species of dropsy, as it regards the proximate cause, belongs to this series of disintegration—namely, deserumized blood. Sometimes there may be a drain of serum through the renal organs, at other times the serum is detained in certain parts of the system; be this as it may, the discovery of serum ex-circulatory would always lead to the inference of abstraction from the blood. In cases of Bright's disease we actually detect a deficiency in almost every analysis. On the contrary, an excess of serum, as in anæmia, may probably act in the same way in causing exosmose into the tissues in consequence of a dissolution of a portion of the triple organization of the blood.

The third series of disintegration consists in a deprivation of fibrin as well as serum. The most striking illustration occurs in malignant cholera. It is unnecessary to describe all the attendant phenomena, but to consider the hæmatology of this disease. After the reception of the choleraic poison, the abstraction of both serum and fibrin takes place frequently with such sudden and extraordinary violence, that during an attack from six to twenty-four pounds of sero-fibrous fluid is expelled by the action of the stomach and bowels, in the course of a few hours. Mr. Grainger, who devoted much time and attention to investigations of this disease on the continent and in this country, in his lecture at St. Thomas's Hospital last year, describes cholera as an affection of the blood. "That the best results which have been attained by the German pathologists, particularly those of Berlin, is that the first impression is aerial, acting on the blood, and thus the blood became poisoned." Dr. Wells has expressed in a short sentence his opinion of the nature of cholera—"A loss of vitality of the blood." Both of these gentlemen approach the true theory. One would imagine it impossible to overlook the destruction of a large portion of the colourless corpuscles. The alvine discharges, consisting chiefly of serum and coagulated fibrin. During health these substances are held in solution, but the vital force being withdrawn the albumen coagulates, the fibrin is precipitated, and we behold these substances in curdled floculi, floating in the dejections. There is no one who has examined the blood in algide cholera who has not remarked its altered appearance. The dark colour and thick consistence have led some to compare it to tar, others to currant-jelly. Dr. Parkes believes the fibrin loses its power of combination, and is poured into the intestines in floculi, known as the solid ingredient in the so-called rice-water evacuations. Much as we may regret that the remote source of this scourge of the nations is still a hidden mystery, the immediate is patent to our inspection. We perceive the analogy there is between the action of the choleraic poison on the system, and the operation of an over-dose of tartarised antimony or arsenious acid. Indeed there is so great a resemblance of symptoms attendant on poisoning with arsenic, that it has often been mistaken for an attack of cholera. A large portion of blood has been disintegrated; this is followed by uncommon efforts to expel the affected organisms, and the spasmodic action seldom ceases until the whole of the affected corpuscles escape from the circulation, unless in fatal cases, where the organs concerned in the disengagement of the poison at length are disabled and unequalled to the task. If the transparent corpuscles are very partially invaded, by timely aid of medicine and *vis vitæ* of the constitution, a reaction may be established which may neutralize the choleraic virus. To use the words of an eminent Professor:—"There are instances of the operation of the vital actions accomplishing the expulsion of noxious matter, and of that part of the animal fluid which have been corrupted by it.*" This appears to be the course and determination of cholera, at least under a mild form. The dead corpuscles are excluded from the mass of the circulation. The assimilative process makes up the deficiency and restores the healthy tone of the blood.

It is not intended at this time to present tables of analysis; it will answer the purpose of the argument, in support of the theory advanced, to state that the blood of a healthy person contains of solid residue, on an average, 210 parts per 1000; but when an attack of Asiatic cholera has abstracted the transparent corpuscles, fibrin, and liquor sanguinis, the solid residuum amounts to 360 parts per 1000. In hæmatological inquiries there will be greater irregularities in the results. The relative proportions of the organic principles are not so much dependent on age or sex as on habits of body and modes of life.

A fourth series of disintegrations of the blood is apparent in the separation and deposit of its fibrin. There is a frightful epidemic, well known in the West India islands, in which the fibrin becomes ex-circulatory, and eventually undergoes a slow condensation, and, as in all fibrinous deposits, it is then rendered insoluble. Such is elephantasis. The parts most frequently affected are the lower extremities, but immense collections may be situated in the loose cellular tissue of the scrotum, or accumulated in the subcutaneous tissue of other parts. There is a class of tumours also with which we are more familiar, not only occupying the exterior of the body but invading the interior likewise; the morbid anatomy of which shews them to consist principally of condensed fibrin. The several stages of production are extravasation of serum, the aqueous portion of which evaporates by perspiration and exhalation from the lungs, leaving the insoluble fibrin under various forms. It has been demonstrated as intersecting scirrhous formations, and in such monstrous scrotal and preputial enlargements as such cases as *Hoo-loo's*, which are largely made up of fibrin, thrown out of the circulatory mass. The accretions distinguished as scirrhous, affecting the pylorus, the rectum, and the mamma, are of the same character. All these diseases are mainly composed of fibrinous exudations, in combination with, or existing as, a web containing other substances, as fat globules, cancer cells, and albuminous fluid. When fibrin is pure it often forms pseudo-membranes; as, for instance, in the adhesions of the pulmonary with the costal pleura, after a bad attack of pleuro-pneumonia. Inflammation induces a separation of fibrin; hence during inflammatory action fibrin is frequently poured into the canals lined with mucous membranes, as in croup, and in this specimen, where we have casts of the primary bronchiæ, produced by a transit of fibrin in acute bronchitis. The whole of this series are attributable to sanguineous derivations in consequence of an impaired vitalism of the blood, allowing of the exit of the liquor sanguinis by exosmose, or it may be ejected, under certain circumstances, by the energies of the animal powers. Fibrin while circulating in the system is always in solution, but when removed by disease it becomes solid.

---

* Dr. C. J. B. Williams' Principles of Medicine, p. 467.

The fifth series of cases of disintegration of the blood comprehends those affections in which effusions of red corpuscles or pure hæmatin is one of the most conspicuous features, as in scorbutus, purpura, and the petechiæ and vibices of typhus. The predisposing causes and primary sources of scorbutus have been traced to insufficiency of some needful article of diet, especially if the privation is attended by mental anxiety and alarm. Of the proximate cause there is no question. We know the blood is dehæmatized when hæmatin has visibly escaped from the circulation; when there is a deprivation of 60 or 80 per 1000 of coloured corpuscles. The deficiency of fibrin, also, in most cases, has been noticed; hence Magendie called this disorder "Defibrination of the blood;" and truly the blood from the gums does not coagulate, for the crassamentum is loose and weak—"a semi-fluid of the consistence of syrup."

On reflection, we cease to wonder that diseases arise from modifications of the blood, when we take but a distant view of the numerous circumstances by which it may be altered. Atmospheric vicissitudes, aliment, drinks, respiration, and the condition of the nervous system, by which all the secretions are governed, exert a powerful influence on the blood, and produce numberless changes in the constitution.

Further inquiries are necessary to determine what value may be attached to the theory of disintegration of the blood. Of this I feel assured, we are advanced far enough to enable us to draw the conclusion that organic changes of the solids in general are not antecedent to an isolation of the elementary organisms, but depend on the dispersed and abnormal existence of the circulating corpuscular fluids. Hence the science of hæmatology deserves our highest consideration, and must be eventually estimated as the very foundation of all pathological investigation.—*Provincial Med. and Surg. Journal, January* 8, 1851, *p.* 1.

---

## 9.—ON MALIGNANT TUMOURS OR CANCERS.

By George Murray Humphry, Esq., Downing College, Surgeon to Addenbrooke's Hospital, Cambridge.

[The word "destructive," if applied to these tumours, would probably explain their nature and tendencies better than the one usually employed. They are destructive, not only by destroying the tissues in their immediate neighbourhood, but also by the new tissue deposited being peculiarly liable to decay, causing breaches or chasms which may increase to a very great extent. These, then, are the leading features of these growths: first, degeneration of the natural tissues around it; and secondly, the tendency to decay of the tumour itself. There is no doubt in the investigation of this class of growths the microscope is a very valuable means of assisting us; nevertheless, the many difficulties and sources of error necessarily intertwined with the use of this instrument, should warn us against too implicit a reliance on the results which it has hitherto afforded us in morbid anatomy. It cannot be relied upon till the observer has bestowed much attention and time to its use. Time may cause it to be regarded as another and surer test, but at present the science is too much in its infancy to enable us to dogmatise upon the information it affords, without giving legitimate weight to other considerations.]

It is commonly agreed that the greater number of cancerous growths consist of a fibrous stroma, disposed in meshes which contain nucleated cells, nuclei, and granules, together with a thin serous or gelatinous fluid. The proportions in which these three elements are combined, vary greatly in the different species of cancer. In the scirrhous or hard cancer, for instance, the fibrous structure predominates: in the encephaloid or soft cancer the cells are more abundant; and the colloid or gelatiniform cancer is composed in great measure of jelly-like fluid. Neither of these elements examined separately are found to exhibit any decidedly distinctive characters, the peculiarity of the cancerous growth consisting not so much in the materials of which it is composed, as in the mode of their arrangement.

[The fibrous basis of cancer seems to resemble closely the common areolar or fibrous tissue, being composed of the peculiar compressed wavy filaments, intermixed often with well developed filaments of elastic tissue. In some cases, however, this fibrous basis does not possess so distinct a structure.]

The cell element of cancer has naturally proved an object of much interest, inasmuch as the essence of the disease would seem to be almost concentrated in it, the rapid growth and self destructive or decaying tendencies of cancer being to a great extent proportionate to, if not dependent on, the quantity of cells developed in the meshes of the fibrous stroma. Pathologists hoped, therefore, to find some distinctive structural peculiarities attaching to these cells whereby the nature of the disease might be recognised at once and with certainty. This expectation has not however at present been confirmed by observation: it is the opinion of those best qualified to judge, that cancer cells do not present any decidedly characteristic peculiarities, that they vary in appearance a good deal, that in each of their different forms they resemble some of the primary cells of other tissues, and that in the form, which from its frequent occurrence in specimens of well-marked malignant disease might be taken as the type, they are not to be distinguished from the cells of cartilage or the cells composing the deeper layers of epithelium. Indeed some of the structures which present in a sufficiently well-marked manner the practical tokens of malignancy, do not appear to contain the cancer cell at all as an ordinary constituent; such are some of the varieties of cancer of the skin and cancer of the muscular coat of the intestinal canal. The cells commonly found in cancers, which may be seen in the fluid scraped from a section of the morbid mass, and to which the name "cancer-cells" has been applied, are larger than blood-globules, of about the same size or rather larger than pus-globules, composed of a tolerably well-defined cell-wall, with one, two, or more nuclei, in which nucleoli may be often seen. The cell-wall is rendered transparent or dissolved by acetic acid, the nuclei being unaffected. The cells vary a good deal in shape, being round or oval, or elongated at one or both ends into a caudate or spindle form, or they may send out processes from various parts of their circumference. It is the general opinion, that they do not, at least ordinarily, advance beyond the cell-stage of organization, that they are not transitional to any other form of structure, but that having attained to a certain size they are disintegrated, and their constituent atoms are returned to the fluid from which they were derived; or by a process of endogenous growth they may become the parents of other secondary cells formed in their interior; that is to say, their nuclei and nucleoli enlarging and converted into cells may fill up the interior of the parent, and at the period of its dissolution may become set free and undergo like changes in their turn, the materials for the growth of their nuclei being furnished by imbibition through their walls. Some authors have described the cells to increase by fissiparous gemmation, and Dr. Bennett speaks much of their occasionally undergoing a retrograding process; the nuclei disappearing instead of enlarging, the cell-wall shrinking, collapsing, becoming infiltrated or intermixed with oil, and ultimately resolved into fragments and granules. He finds the yellowish masses often seen in cancerous tumours to consist in a great measure of cells thus altered.

With regard to the nature of these cancer-cells, and their physiological relations to the fibrous element and to the natural tissues of the part affected, it is not easy to form an opinion. By some authors they have been looked upon as independent existences, like entozoa or fungi, growing in the body and propagating themselves to distant parts through the medium of the blood by sporules which find their way into the circulating current, either through the delicate walls of the capillaries, or through openings in the small vessels. It seems to me on the whole most probable, that they are the result of some peculiar influence exerted upon the nutritive elements of the blood effused among the tissues by an altered or morbid state of the nutrition of the part, being in this respect, to a certain extent, analogous to pus-cells, which they also resemble, in their incapacity to undergo further organization; and in their being in terminal, not transitional, stages of development. The two morbid products differ, however, in the important particular that the cancer-cells possess the property of self-multiplication, absorbing and assimilating the elements of the blood, whereas the pus-cells are dependent for their increase on the continuance of the inflammatory process causing fresh exudations, endued with similar tendencies to those from which they sprang themselves. There are some circumstances, such as the accumulations of pus in certain cavities or abscesses [illegible]; and even the [illegible] a certain [illegible] of inflammation [illegible] the solid lymph effused in these [illegible], but they do so only in a slight degree, and with a [illegible] comparable to that of the [illegible]. This point of difference between the products of inflammation and the elements of cancer is of great importance, and constitutes one of the most marked features of these diseases.

Besides the cells just mentioned, there are commonly found floating in the same fluid nuclei and granules, with perhaps other cells, such as those which are in process of development, fatty matter, [illegible] in the form of minute globules dispersed through the mass in a very [illegible] condition, and there are frequently [illegible] belonging to the [illegible] structure in which it is produced, such as adipose [illegible] glandular tissue, &c. The bloodvessels are [illegible] of large size and very numerous; they are [illegible] to be derived from an increased growth of the vessels normally supplying the affected part.

It should be observed both of the two chief elements of cancer, that they are not only intermixed in very different proportions, but that they do not invariably coexist. In some few instances the cells alone are present, being scattered among the tissues of the infected organ, or they may be intermixed with lymph, effused in consequence of inflammation taking place in a person who is the subject of malignant disease, or in whom the cancerous diathesis is strong. So on the other hand, cases now and then occur in which a tumour, consisting only of fibrous stroma, without the intermixture of any cancer cells, and resembling, therefore, a fibrous tumour, may exhibit the destruction and [illegible] of malignant disease. As a general rule, the rapidity of growth and the tendency to decay in a tumour are proportionate to the quantity of cells developed in it; they are greatest in encephaloid, less [illegible], and least marked of all in those specimens of scirrhus where the fibrous stroma constitutes the entire mass.

The relation which the cancerous elements bear to the natural tissues and their effects upon them, are points of so much interest, that we must [illegible] to them. It is certain that at first the natural and morbid structures are, to say the least, very closely connected together. Most pathologists state that the cancerous matter is infiltrated among the elementary parts of the natural tissues, and occupies their interstices; that in process of time the elements of the tissues become compressed, appear to be blended with the deposit into a homogeneous mass, and gradually become atrophied and disappear. Indeed, the connection between the natural and the morbid structures is in some cases so intimate, the one being entirely indistinguishable from the other, as necessarily to suggest the idea that there may have been not merely a blending, but an actual transformation of the healthy into the cancerous tissue. This is particularly true in some of the glandular organs. In the liver, for instance, the first [illegible] of the disease is frequently [illegible] by a mottled appearance, resulting from a slight discolouration of some of the lobules; they retain their proper shape and size, and [illegible] distinctness from the neighbouring lobules, but they are of white colour, and the natural components of the lobules are replaced by, if not transformed into, the elements of cancer. As the disease increases, adjacent lobules are affected, their structure is more completely altered, their individuality lost, and they are fused into one mass.

When once the cancerous change has commenced it is almost sure to spread. The assimilative energies of the morbid product are so intense that the neighbouring tissues yield under its superior force, their own nutritive powers are as it were prostrated, and they soon disappear in the same manner as the part first affected. Before being thus completely destroyed they are found in many instances to undergo certain alterations, such as atrophy or fatty degeneration, which indicate that their nutrition is impaired and that they are ready to fall an easy prey to the destructive influence which is encroaching upon them. Whether these alterations are entirely the result of that influence operating on them, though at a distance, or whether they are in part also the result of some inherent deficiency, which is the common cause both of the cancer and the atrophy, I cannot say, but am inclined to think the latter is the case. At any rate it is a common thing to find bones affected with cancer in some parts, and atrophied or greasy at others; the mammary gland, which is the seat of scirrhus, in some of its lobules is often shrunken, or loaded with fat in others; sometimes you see, as in the specimen shown you on a former occasion, a small scirrhous lump under the nipple imbedded in a mass of fat, which occupies the seat and retains the shape of the mammary gland. In like manner, when a muscle is affected with cancer, the fibres contiguous to the morbid product, are often observed to be in a state of more or less advanced fatty degeneration; their transverse markings are indistinct or invisible, their nuclei imperfect, and they are pervaded with oil. Further, although the general wasting of the body, so constantly accompanying the progress of cancer may be occasioned by pain, discharge, and various accidental causes, it must be allowed that the disproportionate quantity of fat often found in such cases, both under the skin and about the internal organs,—that fat having a remarkable deep yellow colour—is attributable to some peculiar condition of the nutritive functions dependent on, or associated with cancer.

It seems to be the general result that the higher or more organized tissues—the striped muscular, and the glandular—are commonly affected with atrophy and degeneration in connexion with cancer, and that the more simple and less organized tissues—the unstriped muscular, the cellular, and fibrous—being less amenable to the destructive influences of cancer, are often hypertrophied or thickened by its first impression. We frequently find the two effects simultaneous in the same organ; the glandular element wasting, becoming fatty, or replaced by cancer-cells, while the fibrous element is increased to many times its natural thickness. You will not forget that the latter also does, after a time, yield to the destructive influences of the disease, being impregnated with cancer-cells, or infected with the general tendency to decay and ulceration.

When you cut open a cancerous tubercle, you will often find that, at or near the middle, it is softened or converted into a more or less diffluent pulp; and if such a part be examined more closely, it is seen to have lost all regular structure, and to be composed of fragments which appear to be the disorganized remnants of cells and tissue. The softening depends, probably, upon a failure of the nutritive powers taking place to such an extent that the component atoms are no longer held in those structural relations into which they had been thrown, and in which they had been maintained by the vital and nutritive forces of the growth. It commences naturally at the part first formed, viz., the centre of the tubercle, and is similar to the softening that takes place occasionally in simple tumours, or more frequently in scrofulous deposits and tubercles, and is similar also to the softening and disintegration of the natural structures often induced by inflammation. Though occurring in cancers, for the most part, as a regular or natural process, it may be induced by any cause which prematurely impairs their vital energies, such as an attack of inflammation or a blow. Strange and paradoxical it seems that these same products should possess such irresistible assimilative influence over the surrounding tissues, and should be so unable to maintain their own existence, so liable to decay and dissolution.

The softening may commence at one or more points, and sometimes leads to the formation of several small cavities in various parts of the mass, containing a turbid fluid which often looks like pus and may contain pus corpuscles. Indeed the process frequently resembles and is associated with suppuration; the smaller cavities coalescing into a larger one which approaches the surface like an abscess, bursts through the skin, and leaves an ulcer. When the cancer is situated near the skin, the softening commences on the superficial side, and takes place earlier than when it is deep-seated. This breaking up of the morbid mass is usually attended by some inflammation of the surrounding tissues with effusion of lymph uniting them together and rendering them a more easy prey to the ravages of the disease. At the same time the adjacent lymphatic glands are commonly observed to become inflamed, and to participate in the malady, if they have not before done so. It is by no means uncommon for inflammation in the surrounding tissues to precede the softening of the cancer; indeed it sometimes is contemporaneous with the earliest appearance of the disease, and attends it through all its progress so assiduously that some pathologists have regarded cancer to be only one of the multiform results of inflammation. The cavity or ulcer commencing in the manner just described continues to increase by the progressive softening and disintegration of the neighbouring cancerous tissue, so that particle after particle is separated and forms a component in the discharge; the disease still advancing in the circumference while the dissolution of the mass is thus going on at the centre. In this way huge caverns are sometimes formed, and large parts of the body destroyed. Sometimes the work of demolition proceeds at a greater rate, mortification succeeds to ulceration, and considerable masses are detached. Now and then, in consequence perhaps of a slight inflammatory attack, the whole mass appears to slough away and leave a clean surface behind; but the hopes of a cure thus excited are almost always doomed to be disappointed by the reappearance of the disease in the sides of the chasm from which the slough has separated.—*Provincial Med. and Surg. Journal, Feb.* 19, 1851, *p.* 85.

## 10.—ON THE POINTS OF RESEMBLANCE BETWEEN CANCEROUS AND SCROFULOUS DISEASES.

By George Murray Humphry, Esq.

[Cancer is regarded by some physiologists as a variety of scrofula. Others again imagine that tubercle is one of the varieties of cancer, but there are certainly sufficient differences to induce us to retain in pathology the distinctions at present considered to exist between them.]

Scrofula and cancer *resemble* one another, inasmuch as both consist in the infiltration of a new exudation-substance into the interstices of the texture of a part, that infiltration being attended with a wasting or degeneration of the original tissue; both have a tendency to soften and to ulcerate, causing a loss of substance in the affected organ, and leading to more or less extensive destruction of the body; both seem to be closely associated with, or dependent upon, a want of energy in the nutritive forces of the body generally, as well as of the affected organ in particular, so that the existence of either disease at any one part, leads us to apprehend its appearance in another; both affect all the organs and tissues of the body almost indiscriminately; each presents nearly an uniform appearance in whatever region it is found; and the one is often so much like the other, that it is scarcely possible, with the naked eye, to distinguish between them.

A cancer *differs* from a scrofulous mass in its greater inherent energy of growth; its more complete organization, which is evidenced by the formation of cells, of fibres, and of blood-vessels in its substance; its more complete independence of inflammation; its power of growth, of assimilating the adjacent fluids and tissues, and in its more determined progress. The scrofulous matter, as you remember, is composed chiefly of granules, hardly ever attaining even to the cell-stage of organization, and is dependent for its increase, not on its own assimilative power, but on fresh exudation, which is commonly the result of an inflammatory condition. It often falls into a quiescent state and is absorbed; or if it softens and ulcerates the disease does not generally go on spreading in the circumference, and the ulcer for the most part heals. Such important pathological and practical differences are, undoubtedly, quite sufficient to justify the separation of these two kinds of morbid products into distinct classes.

That tubercle should be ranked with the least inveterate of these two classes—that it is the form which scrofula ordinarily assumes in the internal organs, I have already expressed my opinion. True, it is the form of scrofula most nearly approaching to cancer in its comparative independence of inflammation, and its greater fatality; but the tuberculous mass possesses no higher organization than the scrofulous; it has no cells, fibres, or blood-vessels, except those which chance to remain in it from the undestroyed tissue into which it is infiltrated, and these diminish in number and disappear after a time, so that they cannot be regarded as proper elements of the tubercle, but merely as accidental constituents. Tubercles have no power of assimilation or of increase; they are fatal on account of their numbers, not, like cancer, in consequence of the energy of their growth. Each tubercle having softened, burst, and discharged itself, has done its worst; it leaves no spreading remnant behind, and the cavity produced by it will contract and heal, provided it is not maintained and enlarged by other tubercles forming in its walls and bursting into its interior. The non-existence of any cells or other elements possessing a capability of reproduction, constitutes an important point of distinction between tubercle and cancer, connected as it is with the inability of the former to increase in size, and to exert a destructive influence upon the surrounding tissues. A cancer grows by virtue of its own inherent force; a tubercle is enlarged by some extraneous influence depositing fresh material upon it. It may, I grant, increase in size a little, but no more, probably, than is accounted for by the softening and imbibition of fluid and other changes going on in it. Moreover, tubercle very rarely co-exists with cancer in the same individual, though it is a frequent concomitant with scrofula. Indeed the ages and classes of persons most liable to scrofula and tubercle, are fonnd to enjoy the greatest immunity from cancer.—*Provincial Med. and Surg. Journal, March* 19, 1851, *p.* 145.

---

11.—*Remarks on Cancer.*—By Dr. P. Redfern, Aberdeen.—[Many considerations yet remain of great importance in pathology, for the complete elucidation of cancerous growths. Certain parts of the process can be explained rationally, although not yet actually demonstrated—as the formation of a cancerous structure exuded from the blood-vessels. These conditions appear to be independent of, but to occur somewhat in the manner of those of an inflammatory nature, which pass through their accustomed stages of growth in persons who are the subjects of the most extensive cancerous infiltrations deposited from the same blood.]

In ordinary nutrition, development, and secretion, particular tissues exercise an undoubted power of election or appropriation of the various materials circulating through them, in some cases changing the arrangement of the elementary particles of these, if they do not actually form certain substances by their own immediate action; and so may an organ which has either become the seat of a cancerous deposition, or is predisposed to it in some way unknown to us, exert its peculiar elective force upon the same blood as supplies other parts with materials for the formation of healthy tissue.

The following appear among the desiderata for the perfection of our knowledge of the anatomy and pathology of cancerous growths, viz., to ascertain whether fibres exist in all cancers, and are really essential for the completion of a structure, the attendent phenomena of which shall be indistinguishable from those of cancers in general. And, whether the fibrous tissue of cancerous formation bears any constant proportion in its amount to the fibrous character of the organs in which these are developed, and is regulated by the law of analogous formations. These inquiries cannot be satisfactorily answered, otherwise than by numerous and accurate microscopical examinations of the textures of organs so affected, and especially of cancers which occur in parts that contain no fibrous tissue whatever in their normal state, and in such as contain so small a proportion of it that an increase in its quantity may readily be detected.—*Monthly Journal of Medicine, December,* 1850, *p.* 507.

---

12.—*On Encephaloid Disease.*—By Dr. Charles Kidd.—It has been said encephaloid does not arise from disease of the blood; if not, it is difficult to say whence it arises. Sir Robert Carswell long since stated, that encephaloid was a molecular deposit from deranged nutrition, and our later experience has tended very fully to corroborate his views. Laennec thought it vascular; but this can scarcely be the case, as, under the microscope, we detect little else but some of the infinite series of nucleated cells only, without the peculiar fibre of some other forms of malignant growths The microscope has not yet succeeded in pointing out any diagnostic appearances of malignant and non-malignant growths; it has done much, however, in showing the origin of cancer and these allied diseases.

The highly-interesting fact, described by Ascherson, that a drop of oil cannot come in contact with albumen without being enclosed in a vesicular membrane—that rubbing oil and albumen together resolves them into granules identical with those found in animal fluids—that every kind of blastema deposits those elementary granules, these, united, constituting nuclei, which merely require to take place in the animal body to have the characters of vitality attached to them; the practical fact, that the molecular element is the basis of all living tissues, a view not contrary but in advance of that of Schwann, who considered, I need hardly remark, the cell as the primary form of life; the very great probability that cancer or encephaloid is not a new growth; everything, in fact, tends towards a solution of the difficult problem, what cancer really is. There is no doubt that the nuclei in cancer and cancer-like growths are produced precisely similar to those in the normal textures of the body. That there is a diminished or altered vitality of the blood plasma, is all that we can assert with any amount of certainty. The nuclei of cancer, like those of other cells, may be produced by the aggregation and melting together of molecules and granules, producing new nuclei and cells, which all microscopic observers have seen in their thousand forms, or the orginal nucleus may expand and we have an outer cell wall,—a new nucleus produced within it by the deposition or melting together of granules. Free nuclei, again, in a fibrous stroma, to the young microscopist, may be still quite different, namely, the result of disintegration—of breaking down not building up of tissues, nay, both processes may even be going on together. One of the chief sources in hospital researches, perhaps, of the multiplicity of cancer growths and cancer cells, is this arrest of development from constitutional causes and treatment; there are no granules distinctive of cancer nucleoli and nothing distinctive infallibl of cancer cells; nothing but constant histological research and study of the history of each case, to mark out cancer cells from epithelium or pus cells. Treatment may arrest the disease, and a change in the constitution of the blood from different hygienic conditions, or from cutting out a cancer growth and thus preventing the seeds of the disease spreading, may alter the microscopic appearances; but the microscope alone will tell very little.—*Med. Times, December*, 7, 1850, *p*. 595.

---

13.—*Cancer Cells in the Urine.*—By Mr. Balman.—[At a meeting of the Liverpool Medical and Pathological Society,]

The urine of a patient suffering from cancer of the uterus was exhibited under the microscope, and was proposed by the author as a means of diagnosticating the presence of cancer without the necessity for making an examination per vaginam. The urine washing off the cancerous discharge from the vulva, the nucleated cancer-cells were shown to the society in proof of the value of the test.—*Med. Gazette, January* 24, 1851, *p*. 159.

---

## 14—ON OPERATIONS FOR MALIGNANT GROWTHS.

[Some surgeons strongly advise that malignant growths, under any consideration, should not be meddled with; others think the patient ought to have the benefit of a chance, and so employ the knife in a great number of these sad cases. So far as the experience of the surgeons of King's College Hospital goes, benefit does in general accrue to the patients who are operated on for malignant growths, though it cannot be denied that, in a great number of instances, a return of the malignant disease takes place.]

One of the most striking instances calculated to show these truths—viz., that malignant disease may be eradicated for a time by the surgeon's knife, and that life may be considerably prolonged, and that a recurrence of the disease is too apt, even in apparently favourable cases, to take place sooner or later, was in the hospital during the last year under the care of Mr. Partridge. The patient was admitted with a large fungoid tumour, which was situated in the thigh, just in front of the femoral vessels, as they run along Scarpa's triangle, and encroaching somewhat on Poupart's ligament. The size of the tumour was very considerable, being nearly as large as a man's head.

Now this patient, who was a man hardly in the prime of life, applied at King's College Hospital three years prior to this, he having at this time a large fungoid tumour, situated in the posterior part of the leg of the same side. Mr. Partridge extirpated the mass; the man recovered from the operation, returned to his occupation, and continued in health for a long period: a return, however, of the same disease takes place ultimately. The cicatrix of the old wound in the leg was perfectly healthy, and the disease was now entirely confined to the upper portion of the thigh. Mr. Partridge again operated; unfortunately erysipelas took place, and the patient died from this cause.

This case itself is an argument in favour of removal of malignant growths, when they can be entirely taken away, although the same kind of disease returned at a subsequent period: had not the original malignant tumour been taken away, it is probable that the patient would not have lived half so long as he did, and, moreover, he would have been in a state of constant pain and misery; but the operation kept him free from suffering for a few years at least, and had not an accidental attack of erysipelas carried him off after the second proceeding, he might have lived for as many years more.

It is to be borne in mind, that there was a greater likelihood of temporary success here, from the situation of the original growth, although it was a fungoid tumour: when a fungoid growth is seated in the orbit, in the substance of the testicle, or within the cavities of the nose, there is a much less chance of success after an operation, because it too often happens that similar deposits are co-existent within the internal organs, or they soon involve them; but when the growth is on one of the extremities, and a considerable distance from the trunk, there is less danger of simultaneous disease in internal organs; consequently the chance is more favourable for recovery after operation.

A case where the arm was amputated for malignant disease was in hospital at the commencement of the present year under the care of Mr. Fergusson: it well illustrates the peculiarity of malignant disease to return after a time, as well as the relief which is given by operation. The patient was a healthy-looking labouring man from Kent; and several months previous to the amputation being resorted to, he applied, in consequence of an ulcer situated on the back of the wrist: it was as large as a crown-piece, and it presented that peculiar appearance which denotes malignant action: it caused severe pain; and, moreover, it was entirely intractable to the remedial measures which were employed. Mr. Fergusson therefore removed the entire ulcerated surface with the knife, carrying the instrument well beyond the edges of the sore, so that none of the disease should be left behind. After the operation the wound rapidly cicatrized, and it was almost entirely healed up, and presented a healthy cicatrix, when the patient left the hospital. In the course, however, of a few months he returned again with a sore on the same spot, and of the same appearance. It produced considerable pain, and shortly before his application a considerable hemorrhage had taken place, which had caused the man some fear. It was very evident that it would be useless to attempt to remove the disease entirely without removing the arm as well. Mr. Fergusson therefore amputated in the forearm sufficiently high up for the flaps to be away from the disease. A speedy cicatrization of the stump took place, and the patient left the hospital in a few weeks very much improved in his health. This man lately presented himself, when it was seen that the stump of the amputated arm continued in a perfectly healthy condition, and there was not the least appearance of implication of the cicatrix in the original disease. The patient presented all the appearance of vigorous health. Just over the inner condyle of the humerus, however, is a swelling of some size, painful on pressure, and soft. This he has noticed now for some months: at first being very small and hard. It is impossible to state at present whether this is merely an enlarged and inflamed gland proceeding to suppuration, or whether it is a return of malignant disease in that situation. The hopes of the surgeon suggest the possibility of the former, but his fears lead him, not without reason, to expect that it may probably be the latter.

[The above observations apply more particularly to scirrhous tumours of the mammæ.]

The success after the excision of a scirrhous breast will depend, in a great measure, upon the period at which the operation has been performed—much, also, upon the condition in which the parts are at the time. This of course holds good not only with reference to cancer of the breast, but in like manner to the similar affections in other portions of the body. It would be useless to extirpate, with any hopes of success, a cancerous tumour of the lip, if the sub-maxillary glands are at the same time affected with the disease, or if the growth itself has extensively involved the mucous membrane of the mouth and gums. In like manner, no ultimate benefit can be expected if an operation should have been performed for a cancer of the penis, if at the same time the glands of the inguinal region are contaminated by the disease. It is of equal importance to select the cases of scirrhous mammæ. There will be little hope of doing good if the tumour has existed for a long time, and has become adherent to the skin above, and if at the same time the glands of the axilla are affected by the disease; but if the growth is not of long standing, is perfectly circumscribed, and the skin over it is not adherent or diseased, and if there is no implication of the axillary glands, and no symptom of constitutional disease, the surgeon may operate with the reasonable hope of benefiting his patient; and, if she be willing and anxious to have it done, the surgeon is only doing his duty in acceding to her wishes in such a case.—*Med. Gazette, Dec.* 6, 1850, *p.* 989.

---

15.—*Antiquity of the Use of Animal Oil in Scrofula.*—In Frazer's Magazine for November, 1850, there is an interesting paper—'Leaves from the Note-Book of a Naturalist,' in which is cited a passage from Pliny, as translated in the quaint language of Philemon Holland. The passage is very remarkable, as proving how long the utility of animal oils, in scrofula, has been known. Pliny, in speaking of turtles, observes:—"If their flesh be eaten, together with the broth in which they are sodden, it is held very good for to discuss the king's evil, and to dissipate or resolve the hardness of the swelled spleen."

The naturalist also quotes an old French author, as follows:—"Labat tells us that those who go to the turtle islands, to fish for the green and hawk's-bill turtles, live on the flesh of turtles *only* for three or four months, without bread, without cassava, with nothing, in short, but the fat and lean of the animals; and he declares that, whatever maladies these men may have when they set out upon this expedition, even if they should be affected with the most loathsome, they return perfectly cured."—*Dublin Quarterly Journal of Med. Science, Feb.* 1851, *p.* 18.

16.—*On the Treatment of Anasarca, or General Dropsy, by puncturing the Legs.*—By Dr. C. J. B. Williams.—[At a meeting of the Royal Medical and Chirurgical Society, Dr. Williams gave the following opinion on the excretion of urea in dropsical effusions. We are aware that this opinion of Dr. Williams is very much questioned, and, among other eminent men, by Mr. Simon. Dr. Williams stated that]

When organic disease existed for a long time, not only was the circulation affected, but the secreting organs became implicated; effusion then took place, and the functions became oppressed. His attention had been much directed to this matter, and he had found in all instances of dropsy where there was much effusion of serum either in the legs or abdomen, that the fluid abounded in urea, and in some few instances contained biliary matter. In the proportion in which these abounded, was the relief afforded by puncturing. The serum in dropsy had often an urinous odour. This was chiefly in cases of renal disease, but it appeared to him that dropsy was usually ultimately connected with some functional or organic renal disease. Punctures then, he thought, afforded relief, not only by getting rid of the superfluous serum, but by purifying the blood, and removing from it those materials which were not removed by the secretory organs.—*Lancet, April* 5, 1851, *p.* 379.

---

## 17.—RHEUMATIC FEVER TREATED BY ACETATE OF POTASH.

Under the care of Dr. Golding Bird.

[Many cases have been lately brought forward in which this disease has been treated with various remedies, as colchicum, acetate and nitrate of potash, and lemon-juice respectively. The treatment of rheumatic fever by acetate of potash is the more interesting as involving the truth of Dr. Golding Bird's explanation as to *why* this diuretic salt should be useful in rheumatism.]

Dr. Golding Bird, after giving a detail of the solid matters found in the urine whilst the functions are in a normal state, adds: "but we also know that the researches of Wohler have shown us something more—viz., that whatever substances exist dissolved in the blood not necessary or fit for the repair of the structure of our frame, invariably escape from the body by the kidneys. The injection of saline bodies, colouring matter, &c., readily proves Wohler's statement." The lecturer mentions a little further on, that the septic agents do not re-appear in their original form, but that they undergo metamorphosis; and proceeds in these terms:—"Can we at will by therapeutic agents produce this depurating effect, and by hastening the metamorphosis of matter, aid the removal of a *materies morbi*, whether itself the exciting cause or effect of antecedent morbid action?"

Before we state which are the *therapeutic agents* most likely thus to depurate the blood, we should mention what efficacy Dr. Bird ascribes to the increase in the secretion of the kidneys: "It will be found that the increase of water does not escape alone, but there is really washed away with it a certain although not very large quantity of solid debris." ......"This is a key to the cures effected by mineral springs."......" I would press upon the practitioner the importance of directing his attention to diuretics, not as merely helping the pumping off of the water, but as *renal alteratives*, as remedies aiding the removal from the body of injurious matter." The diuretic to which Dr. Golding Bird gives the preference for removing the *materies morbi* in rheumatism is acetate of potash.

[The first case mentioned by Dr. Bird, was in a girl 16 years old, of sanguineous temperament, who traced her attack to sleeping in a kitchen underground. The disease commenced in the right ankle, soon reached the knee and gradually attacked the left limb as well as the shoulders.]

She was thus labouring under inflammation of the principal joints when admitted, at which period she presented the following symptoms:—skin hot and dry, tongue slightly furred; pulse quick and full, and slight headach. The wrists, knees, and ankles, swollen, stiff, and painful, and yielding a dry rubbing sound on being moved. Bowels and catamenia regular; appetite tolerable; sleep very indifferent. Dr. Bird ordered twenty-five grains of acetate of potash to be taken every fourth hour in camphor mixture, and eight grains of Dover's powder at night. The patient was much better on the third day, she moved her wrists with facility, and without pain; the skin had become moist; she slept better, the bowels acted once a day; and the appetite was improved. Pulse the same as before, and tongue more furred. The medicine was continued, and on the seventh day the ankles were free from pain, though the arms became somewhat stiff and swollen; all the other symptoms improving.

On the fourteenth day, the pulse was natural, and the patient quite free from pain in any joint; the appetite was very much improved; and to each dose of the acetate of potash hitherto regularly taken every fourth hour, four grains of ammonia-citrate of iron were added, and the girl was desired to get up for two or three hours a day. The latter injunction was carried out to a greater extent than had been prescribed, and the consequence was a slight relapse on the seventeenth day; this, however, soon gave way, and on the twenty-first day the patient was discharged quite well.

[The second case was in a married woman 29 years of age. Five days before her admission she had got very wet, and the same evening the right wrist became painful and swollen. The next day the knees and subsequently the shoulder of the same side became similarly affected.]

On admission, the right shoulder, wrist, and knee, were exquisitely tender, as well as swollen and painful; the cheeks were flushed; there was headache, and sour-smelling perspiration; tongue covered with a dirty-white fur, and red at the tip and edges; pulse quick, full and bounding; urine turbid and acid; great restlessness, and no sleep for several nights. Dr. Bird ordered half a drachm of acetate of potash to be taken every fourth hour, in camphor mixture; and ten grains of

Dover's powder at night. The doses were somewhat larger than in the preceding case, both probably on account of the difference of age and the severity of the symptoms. As the joints were exquisitely tender, soda poultices (the ordinary linseed poultice, made with a solution of carbonate of soda, instead of plain water) were applied to the affected articulations. On the third day the patient was considerably relieved; the bowels were, however, confined. Calomel and colocynth were ordered, and the acetate continued. The improvement was steady and gradual; and on the sixteenth day all the joints were well, with the exception of a little stiffness about the shoulder. The patient then took two grains of disulphate of quinine three times a day, and was soon quite well. The urine was in both cases considerably increased in quantity.

It will now be necessary to inquire for what reason Dr. Bird prefers the acetate of potash to other diuretics. If we turn to the above-mentioned lectures, we find the following explanation:—

"Squill, copaiba, broom, juniper, &c., merely increase the fluids, and are useful in dropsy." ...... "Remedies which exert no chemical action on organic matter out of the body, appear to be incapable of augmenting the quantity of solids in the urine, and hence are of use only in the elimination of water; they may and do act as renal hydragogues, but not as renal depurants." .. ... "We have next to notice those remedies among the reputed diuretics which increase the metamorphosis of tissue, and act as *depurating agents*. This class includes the alkalies, their carbonates, and their salts, with such acids as in the animal economy are capable of being converted into carbonic acid, including the acetates, tartrates, and citrates of soda and potash. These remedies act all alike —they all actively stimulate the functions of the kidneys, and increase the bulk of the urine; but they do more—they actually increase the metamorphosis of tissue by, in all probability, a direct chemical action on the elements of worn-out and exhausted tissue or other matter in the capillary laboratory of the body."

As to nitrate of potash, Dr. Bird has found it inferior to the acetate of the same alkali. He has used the latter with much advantage, as he finds that "the quantity of fluid removed from the body by the nitrate of potash is far less than that which is carried off under the solvent influence of those agents which act more energetically on animal matter."[*]—*Lancet, Feb.* 15, 1851, *p.* 177.

---

18.—*On the Treatment of Rheumatism by Lemon Juice.*—By Dr. G. Owen Rees, Assistant Physician to Guy's Hospital.—[Dr. Rees is inclined to believe that lemon juice has not gained so favourable notice as it deserves. This he thinks owing to its administration in cases which experience has shewn him are but ill-adapted for its exhibition. He says:]

---

[* May not this effect of acetate of potash be owing to what Mulder says of the power of acetic acid, &c., to dissolve the protein compounds. See Lancet, Feb. 15, p. 174.]

From the experience I have now had in the use of the remedy, I feel I have sufficient evidence before me to justify the opinion, that there are certainly two forms of rheumatic disease which cannot be benefited by the administration of lemon juice.

The first of these is generally observed in cachectic subjects, and for want of a better name I shall call it cachectic rheumatism. It occurs in all classes of life, but more commonly I believe among the lower orders. It is more frequent in females than in males. The swelling and redness of the parts affected are less marked than is generally the case in acutely painful rheumatism. The pain is, however, very severe, and occasionally partakes of the neuralgic character. The patient is sometimes anæmic, and on inquiry we may perhaps discover a history of long mental or physical suffering. The skin is perspirable; the pulse weak and rapid; the tongue varies, being sometimes moist and white, and sometimes clean and less moist than natural. In cases of this description I have not succeeded in relieving the patient by the exhibition of the juice; and if occasional relief has been obtained, the disease has shown a tendency to relapse, and become unmanageable under a continuance of the remedy. It may perhaps be well to mention, that in these cases I have derived the greatest benefit from the exhibition of opium in full doses at frequent intervals. The other form of rheumatism in which I have failed to obtain relief by the administration of the juice is that attendant on syphilis. In all the cases in which I have made trial of it among the female out-patients at Guy's Hospital, it has failed to exert any beneficial influence. The nature of the disease, so distinct from that of ordinary rheumatism, never indeed gave me any great hope of success. If we except the diseases above described, and cases simulating rheumatism, but really connected with ordinary dyspepsia, or, as is sometimes the case, with the existence of Bright's disease, my continued experience has but the more persuaded me of the great value of lemon juice as a remedy for rheumatism. Its action is sometimes most remarkable, causing cessation of pain and decrease of swelling and redness, such as we can rarely obtain with colchicum, even when administered in large and hazardous doses. That lemon juice sometimes fails to effect this rapidly is certainly true, and that too with respect to cases apparently identical with those in which early benefit has been observed; but the history even of these less favourable instances will generally bear comparison with the results obtained by the ordinary plans of treatment; and it is my full conviction, that since lemon juice has been introduced at Guy's Hospital as a remedy for acute rheumatism, the period during which it has become necessary to confine patients so affected to bed has been very materially lessened.

I am anxious now to direct attention to a class of chronic rheumatic cases, in which I have used lemon juice with very great advantage. I allude to such as are connected with deposit of lithate of soda in and about the smaller joints, and which partake more or less of the gouty character. I have met with great success in this form of disease by the continued use of lemon juice in combination with small doses of the tincture of the sesquichloride of iron, and in several instances have effected absorption of deposits which have resisted all other plans of treatment. A case of the above description was lately reported to me, in which like success attended the administration of the lemon juice alone. The patient, a lady, had been a cripple for several years, and was eventually restored by persevering in the use of the remedy for six or eight weeks.

Lastly, with respect to the dose in which the juice ought to be administered. Experience has shown me that it should be larger than I was at first inclined to consider necessary. In acute rheumatism, from one to two ounces should be given every four or six hours; and should pain be felt in the bowels, or diarrhœa occur, which is very rarely the case, four or five minims of tincture of opium may be added to each dose of the remedy.—*Lancet, December* 14, 1850, *p.* 651.

---

19.—*On the Treatment of Acute Rheumatism by Local Anæsthetics.*—Dr. Aran relates the results of his researches on the application of anæsthetics to the joints, in acute rheumatism. A moist compress, on which the agent is sprinkled, is applied and renewed once in twenty-four hours, being enclosed by impervious bandages so as to prevent its evaporation. It is applied to each joint in succession as it becomes inflamed. Having experimented with various agents, Dr. Aran decides in favour of the *Dutch liquid.* The relief afforded, as regards the local pain, is very decided, and lasts from one to six or eight hours according to the severity of the attack. The movement of the limbs is restored, and the swelling subsides, and the disease gradually declines in from six to eighteen days according to the duration and acuteness of the disease. The complications of rheumatism may be treated on general principles at the same time.—*Med. Gazette, December* 27, 1850, *p.* 1106.

---

## 20.—ON ERYSIPELAS.

By M. Broke Gallwey, Esq., Assistant Surgeon, Royal Regiment of Artillery, Woolwich.

Some of the most original and philosophic remarks that have graced the medical literature of our own country, on this disease, will be found in the No. of the 'Lancet' for March 1844, from the pen of Dr. Arthur Wilson, of St. George's Hospital. I may say, I believe, that I have pretty nearly waded through everything that has been written, in ancient and modern literature, upon erysipelas; and I know of no author who, in a very small compass, has delivered himself of so much valuable matter upon the *natural history* of the disorder. "Erysipelas," says Dr. W., "may be described as a *severe depressing fever*, lasting from eight to twelve days, and determined, by a special effect of inflammation, to that peculiar organic structure, the integuments of the head and face. Like other fevers, it often supervenes on any of the various causes that induce a bad state of the general health. Like the other eruptive fevers of this country, erysipelas, in bad cases, always becomes typhoid towards its close. Its pathology, by dissection, is that of scarlet fever, which, in its several stages, it very much resembles." Again: "Regarding its symptoms, whether local or general, as a train of actions *tending of necessity to their own relief,* we should in most cases, be content to watch over their safe development, and to wait patiently for the result, which, in this fever, soon arrives. Idiopathic erysipelas, within ten days from its invasion, seldom fails to cure itself." The following is a severe but just satire upon the thousand and one contrivances devised by physicians to thwart and defeat nature's efforts when oppressed by this poison:—"In our application, by treatment, of these principles to the local effects of the disease, while we are careful to protect from lasting injury the structures in which its action is most declared, we should continually remember that *in the progress of the eruption is the advancement of the cure.* It is under an imposed task of swelling, vesication, and excretion, that the skin, which bears the strain of this fever, is enabled to relieve the other vital organs, and, in the end, to maintain its own integrity. How rash and mischievous the interference that would seek to mislead the actions thus determined to the surface, by the introduction of belladonna to the system already charged with morbid poison in the blood,—that would prescribe, in all cases of the disease, an exact limit to its eruptive action, by pencilling the inflamed face and scalp with designs in lunar caustic! The mask which, in erysipelas, the patient is compelled to wear, should never be adapted by his physician!" Again, speaking of the *natural course* of some diseases, and of the fact that their *ebullitions* have a tendency to work out a "good and wholesome result," Dr. Wilson well observes—"The practical application of this principle in the treatment of disease is a continual rebuke to the vanity that would in all cases attribute the interruption or alteration of symptoms to the efficacy of the last prescription. There is no better test of the physician's general character than is afforded by his practice in erysipelas. From the rapidity with which its symptoms are developed (generally to a good end), much of the treatment in this fever is superfluous, yet much affects to be specific: and thus the boaster triumphs in a cure where the true physician is content with acknowledging a result."

There is much more in the paper from which I have been quoting that merits our serious attention. But I have done an injustice to its merits in that part of my essay where they should more appropriately have been noticed—to wit, under the head of what I had to offer upon the morbid condition of the blood in erysipelas; for, the primary object with Dr. Wilson has been to establish the *constitutional* nature of this disease, having its departure, its rallying point, and, indeed, its entire essence, in a blood-poison. I have reason to know that, for years before the publication of his remarks on erysipelas, Dr. Wilson had laboured at St. George's to establish the great truths of the humoral pathology: but that those labours were sneered at by some and openly ridiculed by others incapable of appreciating their importance. And, it cannot but be gratifying to this estimable physician to witness the *almost rush* with which the tide of opinion is now setting in this direction. Copernicus was beaten with many stripes for asserting that the earth moved round the sun, and on rising from beneath the uplifted arm of the oppressor, he he still muttered out, "*And it still moves round the sun, for all this.*" Dr. Wilson was nothing daunted by those who inflicted stripes upon his adopted; and his consistent support of it ever since bespeaks the fondness with which, all along, it had lain in his bosom. Verily he has his reward.

Dr. Graves has an interesting chapter, in the second edition of his his work on Clinical Medicine, upon erysipelas, with the merits of which I must detain the reader for a moment. "Erysipelas, you are aware," he says, "is generally looked upon as an inflammatory disease, and its treatment is always more or less antiphlogistic (?) during the early stage. At this period, it is customary to treat it with general bleeding, leeching, scarifications, purgatives, mercury, and tartar emetic; and I will allow that many cases should be treated in this manner. But the gentlemen who have attended this hospital within the last three months have witnessed a form of erysipelas which required, from the beginning, an exactly opposite line of treatment. In the management of the cases which fell under our observation, no one in his senses would think of using general or local depletion, purgatives, or tartar emetic. The moment the disease appeared we were obliged to attack it with tonics, narcotics, and stimulants."

In the course of his Lumleian Lectures, the adynamic nature of erysipelas, and its immediate dependance upon a blood-poison, have been insisted upon by Dr. Todd in the most unqualified terms. Indeed, so forcibly does this eminent writer consider it a disease of low power, that he characterises "*alcohol as an antidote to the erysipelatous poison,*" and treats the disorder in all cases and under all circumstances, if I mistake not (for I quote now from memory), with brandy.

Dr. Copland describes erysipelas as "an *asthenic* inflammation depending upon constitutional disorder." Like Mason Good, he speaks of an "erysipelatous diathesis," which appears to him "to be connected with great irritability or tenderness of the cutaneous surface, and *defective power* of *the capillary vessels* and secreting surfaces and viscera." Among its most frequent predisposing causes he ranks "feeble leucophlegmatic and plethoric habits, unwholesome and low diet, general cachexia, and exhaustion of vital or constitutional power," &c.; and in that portion of his elaborate article on erysipelas which is devoted to the "nature" of the disorder, he observes—"The diffusive character of the inflammation, whatever tissue it may attack, is referrible entirely to defective vital power, to the changes in the circulating fluids, and to the imperfect tone of the extreme vessels; these conditions being inadequate to the formation of coagulable lymph: the products of inflammatory action in this state of vital power, and of vascular action and impurity, being a turbid, puriform, ichorous, or sanguineous serum, which produces a septic effect, or poisons the adjoining parts, especially the cellular tissue." Considering that Dr. Copland insists very strongly upon the intrinsically *asthenic* nature of erysipelas, there is to my mind, some inconsistency in the terms with which we behold him flirting with the lancet in his management of the disease. "In some instances," says he, "large depletions are required; in others, moderate or local depletion only is admissible; and in many, depletion is most injurious, the most energetic tonics being often indispensably necessary." And, in speaking of the "phlegmonoid" form of the disease, he adds—"depletion and other evacuants should be prescribed with a promptitude and to an extent co-ordinate with each, and with a due regard to the circumstances of the case: always recollecting that, in diseases like this, which are connected more or less with imperfect excretion and a morbid state of the circulating fluids, vascular action may be excessive, whilst nervous power and vital resistance are reduced to the lowest states; and, therefore, that vascular depletion, in order to be salutary, or even not to be injurious, should be rarely employed, and with strict attention to its effects, both at the time and immediately afterwards."—*Med. Gazette, December* 27, 1850, *p.* 1096.

## 21.—ON PURULENT ABSORPTION.

By Samuel Solly, Esq., F.R.S.

[In his valuable and interesting lectures on this subject, delivered at St. Thomas's Hospital, Mr. Solly, speaking of phlebitis, and the effect of pus on the blood, remarks,]

Pus, when mixed with the blood, coagulates that fluid, the action is not a chemical action, but a vital action. And you will at once perceive how beautifully this action is ordained by nature to prevent purulent absorption. When the vital forces retain their normal power, then the blood coagulates at once, and the wound in the vessel is sealed by a firm coagulum of blood while the healing process is going on; but if the vital power of the blood is diminished by disease, then this conservative coagulating action does not take place in time to plug the vessel, and stop the poison at the threshold. The barrier which nature, in a state of health, erects, to prevent the flow of pus into the veins, is not set up, and the poisonous fluid is carried onward in the current of the circulation.

You must not, however, suppose that the erection of this barrier is interfered with only by disease. It may be, and often is, broken down mechanically. After bleeding in the arm, if the limb is not kept at rest, the plug is not formed, and the healing of the wound is interrupted, pus forms, and phlebitis takes place. It is true that the contractile coat of the vein plays its part also in preventing purulent absorption just as it assists in preventing hemorrhage, and if the powers of the constitution are weakened by disease or atmospheric causes, so also will the contractile power of the coats of the vein be deteriorated. But there are some veins so placed that they cannot contract on their contents, these veins are therefore dependent on this vital coagulation of the blood for their safety—I mean, the veins in bones. Hence you will perceive the immense importance of keeping the veins of a fractured limb at rest, when pus is being formed round the broken ends of the bone, and you have reason to fear the occurrence of purulent absorption being promoted by the depressing influences of an impure atmosphere or a weakened constitution.

There is another depressing agent which, I think, has not been sufficiently insisted upon: I mean, anxiety of mind. I am quite sure that mental anxiety has carried more poor fellows to the grave than any single cause that the surgeon has to contend with. I have repeatedly, and for a long series of years, observed a connexion between anxiety of mind and the formation of abscesses. I cannot offer any physiological or pathological explanation of it. I have also observed purulent absorption more frequent in patients, who, to use their own phrase, have "had something on their minds." This was certainly the case in the instance of two of the patients to whom I have adverted; I mean the man with compound fracture, and the other with fistula in ano.

You must not suppose that the veins are the only channels by which pus enters the system. The absorbents are sometimes the traitors that admit this deadly enemy into the citadel of life. There is a case now in the hospital, which on some future occasion I will relate to you in illustration of this fact.

Purulent absorption by veins has been called phlebitis But there is this objection to the name; it implies the process is attended with inflammation of the coats of the vein, which certainly is not always the case. I do not mean to say that veins are never inflamed, or that pus is never absorbed by an inflamed vein; but I do mean, that when pus is absorbed by veins, they are not usually inflamed. I think it would be better to restrict the term phlebitis to inflammation of the vein, and use the term purulent absorption to the affection we are now considering.

I must next explain to you what becomes of the absorbed pus, and in what way it produces such mischief in the system.

The pus globules once admitted into the current of the blood, flow freely through the large systemic veins, until they reach the capillary system of the lungs. It has been stated, that in consequence of these pulmonic capillaries being more minute than the pus globule, that its progress is arrested; that they accumulate till the capillary, no longer bearing the pressure from behind, gives way, and they are extravasated into the parenchyma of the lungs. Here they reproduce their species. I doubt this mechanical explanation; I am more inclined to regard it as an attempt to excrete the poisonous matter to get rid of it from the system. I believe that this is sometimes effected, and the matter is coughed up, and the patient recovers. At the same time it must be remembered that the pus globule is a living nucleated cell, and as such enjoys an individual existence; it forms new cells, and their accumulation constitutes a new abscess.

The lungs are not the only portions of the organism where this attempt to unload the system occurs. You find secondary abscesses in other situations. In the case I am about to read to you, suppuration took place in the hand. It has been doubted if these abscesses ever occur on the other side of the lungs—that is, in the systemic arteries, unless pus has been previously effused in those organs. There are, however, several cases recorded of abscess in the liver after injuries of the head, without any mention being made of abscess also in the lungs.

Mr. Arnott collected thirty-three cases of purulent absorption following injuries of the head. In twenty-one of these, the secondary purulent deposits took place in the abdominal viscera; in five, in the thorax; in six, in the abdominal and thorax conjointly.

In one there was a deposition of pus in the substance of the heart; one, in the kidney; one, in the spleen; one, in the integuments of the back. So that you will perceive by these facts that the lungs are not the only organs where secondary purulent deposits take place.

"The general course of these cases," says Mr. Arnott, "seems to have been this, and in the great majority (twenty-four) it is so stated, that the patient for some time did well, having recovered his consciousness, when this had been lost, which was frequently not the case, was free from fever, and the wound suppurating kindly; that afterwards unfavourable symptoms took place, consisting of fevers, rigors, nausea, and vomiting, delirium, yellow colour of the skin, and sometimes, shortly before death, pain in the right hypochondrium, or affection in the chest. There was some difference in the period at which these symptoms appeared; but of nineteen cases, the earliest of which was the seventh, and the latest the twenty-fourth day the average was between the thirteenth and fourteenth day after the accident. The average period of the fatal termination of the same cases was between the twenty-second and twenty-third days, the earliest being on the fifteenth, and the latest on the twenty-seventh, subsequent to the injury."—*Lancet, March* 15, 1851, *p.* 289.

## DISEASES OF THE NERVOUS SYSTEM.

### 22.—ON THE PATHOLOGY OF CEREBRAL AND SPINAL SOFTENINGS, AND ON THE NECESSITY OF EMPLOYING THE MICROSCOPE TO ASCERTAIN THEIR NATURE.

By Dr. J. H. Bennett, Edinburgh.

[There is some doubt about the nature of these conditions. Some consider them as the results of inflammation, chronic or acute; others think they may be induced occasionally from other causes. The main difficulty has hitherto been to distinguish one kind from another. There seems no doubt that two kinds of nervous softening are the product of inflammation, and the other arising independently of it. It is of great importance, therefore, to distinguish accurately the inflammatory from the non-inflammatory kinds.]

Inflammatory softening always contains numerous granules and granular corpuscles, which are more numerous according to the degree of softening. The nervous tubes and normal structures are always, when the softening is great, more or less broken up. The nature of inflammatory softening of the brain, like all such lesions, depends upon the exudation of blood plasma, the development of granular corpuscles, and the subsequent breaking down of the latter.

If chronic, it may be considered a fatty degeneration of the brain. When recent the serum poured out also assists in producing the softening.

In non-inflammatory softening, on the other hand, we find the cylindrical and varicose tubes of the part are rendered more soft and easily

HOSPITAL,

separable from each other. They have more or less lost their natural firmness and consistence, are readily torn across, the varicosities are easily enlarged by pressure, and, when separated or broken off, assume a globular form. The tubes also are more or less broken into fragments, and no exudation granules, masses, or granular corpuscles are to be detected.

The nature of non-inflammatory softening varies according to circumstances. It would seem to arise from four causes:—1st. From mechanical violence in exposing the nervous centres. 2nd. From a mechanical breaking up of the nervous tissue, by hemorrhagic extravasations, whether in mass or when infiltrated in small isolated points, constituting capillary apoplexy. 3rd. From the mere imbibition of effused serum, which loosens the connection between the nervous tubes, and diminishes the consistence of the nervous tissue. 4th. From the process of putrefaction.

As regards the difference supposed by some to exist between the softening in adults and that in old persons, I fully agree with M. Durand-Fardel, when he says, "cerebral ramollissement is the same malady in old persons as in adults; that it presents no other differences than the modifications which a variation in age always produces, connected only with the form, and not with the nature, of the lesion."

As for the opinion, that softening of the brain is a lesion *sui generis*, due to diminution of nutrition, to gangrene, or obstruction of arteries, my observations have convinced me, that all such explanations are hypothetical in the highest degree, and have no real existence.

The cases which I have recorded also indicate that different symptoms were present in such cases as were inflammatory, and in such as were non-inflammatory. Thus, in twenty-four cases carefully examined and analysed, in which cerebral softening was observed, granular corpuscles were present in eighteen, whilst in six no traces of these bodies could be found. On analysing the symptoms of these cases, we shall find a marked difference between those accompanying the one lesion or the other. Thus in the cases where *only* inflammatory softening was present, well-marked symptoms invariably existed, such as loss of consciousness, preceded or followed by dulness of intellect, contraction and rigidity of the extremities, or paralysis. On the other hand, in the six cases of non-inflammatory softening, there was no paralysis or contraction, and no dulness or disturbance of the intellect. Again, in the four cases where both lesions were present, symptoms could always be observed in the sides opposite the inflammatory softening, while none existed opposite the non-inflammatory. An analysis of these twenty-four cases, therefore, leads to the conclusion, that the two kinds of softening we have endeavoured to establish are alike distinguishable, both by their intimate structure, and by the symptoms accompanying them during life.

Now all practical men agree in considering it a matter of extreme difficulty to reconcile, with any certainty, the morbid appearances found in the brain, with the symptoms previously observed. The future microscopic examination of the softening may serve to prevent much of the error that has hitherto been committed. For instance, softening of the fornix, septum lucidum, and central parts of the brain, may exist in two cases. To the naked eye they may be in every respect identical, and yet the microscope enables us to determine that the one contains granular corpuscles, whilst, in the other, not one of these bodies is to be found. It becomes evident, then, that previous to this distinction having been made, two distinct lesions were confounded together; and that a different train of symptoms should, under such circumstances, be occasioned, is only to be expected. Again it has frequently excited surprise, that, notwithstanding the existence of well-marked symptoms of softening, nothing was to be discovered after death. Now I have demonstrated in several instances that, although to the naked sight no morbid lesion was apparent, still portions of brain might contain the same granular corpuscles as are to be seen in more apparent lesions; and that by considering such parts diseased, all the symptoms might be explained according to the pathological laws I have previously explained. By excluding these sources of error, therefore, and by being enabled at once to distinguish the lesion dependent on inflammation from others which simulate it, we shall be enabled to obtain more exact data for future investigations. From the observations recorded, however, the two following propositions may, I think, be established.

1st. *That pathologists have hitherto confounded softening dependent on inflammation, with softening occasioned by post mortem changes or mechanical violence.* 2nd. *That notwithstanding the most anxious search, and the existence during life of the most decided symptoms of softening, inflammation, though really present, has escaped observation.*

With respect to the first proposition it may be observed, that in many cases where no symptoms were present during life, extensive softening of the brain has been found after death. This is a well known fact, and is one which tends in no small degree to throw confusion on the pathology of nervous diseases. Thus, in one case there was extensive softening of the central portion of the brain, corpora striata, and optic thalami, which, however, contained no granular corpuscles. The symptoms were sudden insensibility and convulsions, which evidently depended on a capillary apoplexy that was also present. No paralysis or contraction existed. Four other cases were recorded, with more or less softening of the brain, without head symptoms, and without granular corpuscles in the softened portions.

Now in all these five cases there was an extensive softening, which it was impossible for any one to distinguish positively, by unaided sight, from inflammatory softening. In neither did granular corpuscles exist, and in neither did those symptoms occur which are peculiar to similar softenings produced by inflammation.

In addition to these five cases there were four others, where, conjoined with an inflammatory softening producing particular symptoms, there was also non-inflammatory softening, occasioning no symptoms whatever. The circumstances attendant on these nine cases, therefore, must convince us that softenings produced mechanically, or by post mortem changes, have frequently been mistaken for those dependent on inflammation, and *must necessarily be so, so long as unaided sight is made the sole means of forming a judgment with respect to their nature.*

A perusal of these cases must satisfy any one that pathologists have hitherto been confounding two distinct lesions, viz., a softening dependent on inflammation, and a softening dependent on mechanical or other causes.

The second proposition, that softening or inflammation, though present, has frequently escaped observation, is clearly established by the following facts:—

A man had paralysis, with complete resolution of the limbs on the right side, and intense rigidity of them on the left. Death occurred in six hours. On dissection, a large coagulum of blood was found effused into the left hemisphere, thus explaining the paralysis on the right side. In the right hemisphere an old apoplectic cyst was found, and a number of small cavities, described by Dr. Sims as chronic softening undergoing a cure. Here, then, there was nothing acute—nothing to explain the intense rigidity. A microscopic demonstration demonstrated that their cavities contained numerous granular corpuscles and granules, thus proving the existence of inflammation on the right side of the brain, and explaining the rigidity on the left side of the body.

Another well-remarked case was that of a man who entered the Infirmary, under Dr. Paterson, in 1842. All the symptoms of acute softening were present; paralysis of the left side, including rigidity and contraction of the left arm, dulness of intellect, and tonic spasms of the muscles of the mouth and neck. The right side was also affected in a slighter degree. As the case excited considerable interest, great care was taken in examining the brain. When the lateral ventricles were opened, it became a question whether the right corpus striatum was softened. Several persons applied their fingers, and endeavoured to ascertain the point. As the manual examination proceeded, the normal consistence of the part diminished, until at length it presented all the appearance of pultaceous softening. In this state it was shown to Dr. Paterson, who naturally enough considered it to be the result of disease. I differed from him in opinion: first, because I had carefully observed the gradual increase of the softening in the manner alluded to; and secondly, because disease of the corpus striatum, in one side of the brain, could not have explained the well-marked symptoms which existed on both sides of the body. When the pons varolii was bisected, Dr. Peacock, who conducted the examination, conceived it to be softened; others who examined it could perceive no difference in the texture; its colour and consistence were unchanged. Reasoning from the symptoms, the lesion was very likely to exist. But how, it was argued, could a judgment be formed; we ought to reason from facts, not theories? Here, then, was an evident lesion of the corpus striatum, which explained nothing, and a problematical lesion of the pons varolii, which, however, did it exist, would satisfactorily account for the symptoms. In this state of uncertainty the microscope was sent for, and I demonstrated, and made evident to Drs. Paterson, Peacock, and all the students present, that the corpus striatum contained no granular corpuscles, whilst in the pons varolii they were very abundant. I have endeavoured to describe what took place on this occasion, from which it must be evident that had not the microscope been appealed to, the right corpus striatum would have been pronounced softened, whilst the real lesion in the pons varolii might have escaped observation. Under such circumstances this case would have added another to the inexplicable observations with which the records of nervous diseases abound.

What renders these cases, and several others I could relate, so remarkable and satisfactory is, that they are not instances where the dissection was performed in a hurried manner, and by incompetent persons. On the contrary, from the particular symptoms connected with them during life, the post mortem examination was in all conducted with extreme care. The physician who had charge of this case was present. The examinations were witnessed or conducted by myself, in the presence of clerks and numerous students, and I may say that we were all in doubt until the microscope cleared up the difficulty. *These cases, therefore, sufficiently demonstrate that the naked sight is positively unable to detect lesions, even although they are directly indicated by the symptoms, and carefully looked for by experienced morbid anatomists.*

If, then, the two propositions formerly stated have been satisfactorily proved, and it is agreed that pathologists have been confounding inflammatory with non-inflammatory softening, and overlooking the former, although undoubtedly present, it must be evident that many of the contradictions which have existed in connection with the pathology of nervous diseases, may be accounted for. It must also be clear that no confidence can be placed in the analysis of cases, however numerous, when the sources of error now indicated have not been carefully excluded.—*Monthly Journal of Med. Science, April* 1851, *p.* 365.

## 23.—ON THE DIAGNOSIS OF DISEASES OF THE NERVOUS SYSTEM.

By Dr. J. H. Bennett, Edinburgh.

[The diagnosis of these disorders is dependent on a kind of knowledge altogether different from that appertaining to the consideration of cutaneous, pulmonary, or cardiac affections. No distinct or definite laws or classifications are of such avail in the examination of nervous diseases. Some of the most fatal nervous disorders also leave, after death, no lesion detectible by the most careful examination. On the other hand, tumours and extensive destruction of the cerebral mass frequently exist without producing any effect whatever. Nevertheless, careful observation, conjoined with a knowledge of physiology and pathology, enable us to approximate closely towards, if not actually reach, in the great majority of cases, a correct opinion. Dr. Bennett first considers]

1. *Structure and Arrangement of the Nervous System.*—To the eye, the nervous system appears to be composed of two structures,—the gray or ganglionic, and the white or fibrous. The ganglionic, when examined under high powers, may be seen to be composed of nucleated corpuscles, varying greatly in size and shape, mingled with a greater or less number of nerve tubes, also varying in calibre. The important fact, with regard to these, is, that many of the corpuscles may be demonstrated to throw out prolongations, which are in direct communication with, or constitute, the central band or axis of Remak and Purkinje within the tubes. The fibrous structure may be shown to consist of minute tubes, which are

smallest towards the periphery of the cerebrum, larger towards its base, and largest in the nerves. They are of three kinds, -1st, cylindrical, as observed in the optic and auditory nerves; 2nd, varicose, as seen in the white substance of the cerebral lobes and of the spinal cord, and 3rd, of regular size throughout, as seen in the nerves. There are also bundles of gelatinous or flat fibres, the nature of which is much disputed, very common in the olfactory nerve and sympathetic system of nerves. There can be no doubt that some nerve tubes run into the ganglionic corpuscles, whilst others originate from them. (Wagner, Kölliker.) It is even possible that the same ganglionic corpuscle may receive and give off nerve tubes, each having distinct properties, the one of conveying the influence of impressions to, and the other of conveying influences from, the nervous centres. The peripheral termination of the nerves is in loops or arcs.

The general arrangement of the two kinds of structures should be known. By cerebrum, or brain proper, ought to be understood that part of the encephalon constituting the cerebral lobes, situated above and outside the corpus callosum; by the spinal cord, all the parts situated below this great commissure, consisting of corpora striata, optic thalami, corpora quadrigemina, cerebellum, pons varolii, medulla oblongata, and medulla spinalis. In this way, we have a cranial and a vertebral portion of the spinal cord.

In the cerebrum, or brain proper, the ganglionic or corpuscular structure is external to the fibrous or tubular. It presents on the surface numerous anfractuosities, whereby a large quantity of matter is capable of being contained in a small space. This crumpled up sheet of gray substance has been appropriately called the hemispherical ganglion. (Solly.) In the cranial portion of the spinal cord, the gray matter exists in masses, constituting a chain of ganglia at the base of the encephalon, more or less connected with each other and with the white matter of the brain proper above, and the vertebral portion of the cord below. In this last part of the nervous system the gray matter is internal to the white, and assumes the form of the letter x, having two posterior and two anterior cornua,—an arrangement which allows the latter to be distributed in the form of nerve tubes to all parts of the frame.

The white tubular structure of the vertebral portion of the cord is divided by the anterior and posterior horns of gray matter, together with the anterior and posterior sulci, into three divisions or columns on each side. On tracing these upwards into the medulla oblongata, the anterior and middle ones may be seen to decussate with each other, whilst the posterior columns do not decussate. On tracing these up into the cerebral lobes, we observe that the anterior columns, or pyramidal tracts, send off a bundle of fibres, which passes below the olivary body, and is lost in the cerebellum --(*Arciform band* of Solly). The principal portion of the tract passes through the corpus striatum, and anterior portion of the optic thalamus, and is ultimately lost in the white substance of the cerebral hemispheres. The middle column, or olivary tract, may be traced through the substance of the optic thalamus and corpora quadrigemina, to be in like manner lost in the cerebral hemispheres. The posterior column, or restiform tract, passes almost entirely to the cerebellum. In addition to the diverging fibres in the cerebral hemispheres which may be thus traced from below upwards, connecting the hemispherical ganglion with the structures below, the brain proper also possesses bands of transverse fibres, constituting the commissures connecting the two hemispheres of the brain together, as well as longitudinal fibres connecting the anterior with the posterior lobes.

2. *Functions of the Nervous System.* -The great difference in structure existing between the gray and white matter of the nervous system, would *à priori* lead to the supposition that they performed separate functions. The theory at present entertained on this point is, that while the gray matter eliminates or evolves nervous power, the white matter simply conducts to and from this ganglionic structure the influences which are sent or originate there.

The brain proper furnishes the conditions necessary for the manifestation of the intellectual faculties properly so called, of the emotions and passions, of volition, and is essential to sensation. That the evolution of the power especially connected with mind is dependent on the hemispherical ganglion is rendered probable by the following facts:—1. In the animal kingdom generally, a correspondence is observed between the quantity of gray matter, depth of convolutions, and the sagacity of the animal. 2. At birth, the gray matter of the cerebrum is very defective, so much so, indeed, that the convolutions are, as it were, in the first stage of their formation, being only marked out by superficial fissures almost confined to the surface of the brain. As the cineritious substance increases, the intelligence becomes developed. 3. The results of experiments by Flourens, Rolando, Hertwig, and others, have shown that, on slicing away the brain, the animal becomes more dull and stupid in proportion to the quantity of cortical substance removed. 4. Clinical observation points out, that in those cases in which the disease has been afterwards found to commence at the circumference of the brain and proceed towards the centre, that the mental faculties are affected *first;* whereas in those diseases which commence at the central parts of the organ and proceed towards the circumference, they are affected *last.*

The white tubular matter of the brain proper serves, by means of the diverging fibres, to conduct the influences originating in the hemispherical ganglion to the nerves of the head and trunk, whilst they also conduct the influence of impressions made on the trunk, in an inverse manner, up to the cerebral convolutions. The other transverse and longitudinal fibres which connect together the two hemispheres, and various parts of the hemispherical ganglion, are probably subservient to that combination of the mental faculties which characterises thought

The spinal cord, both in its cranial and vertebral portions, furnishes the conditions necessary for combined movements; and that the nervous power necessary for this purpose depends upon the grey matter, is rendered probable by the following facts:—1st, Its universal connection with all motor nerves. 2d, Its increased quantity in those portions of the spinal cord from whence issue large nervous trunks. 3d, Its collection in masses at the origin of such nerves in the lower animals as furnish peculiar organs requiring a large quantity of nervous power, as in the triglia volitans, raia torpedo, silurus, &c. 4th, Clinical observation points out that, in cases where the central portion of the cord is affected previous to the external portion, an individual retains the sensibility of, and power of moving, the limbs, but wants the power to stand, walk, or keep himself erect, when the eyes are shut; whereas, when disease commence in the meninges of the cord or externally, pain, twitching, spasms, numbness, or paralysis, are the symptoms present, dependent on lesion of the white conducting matter.

The white matter of the cord acts as a conductor, in the same manner that it does in the brain proper, and there can be no doubt that the influence arising from impressions is carried along the tracts, formerly noticed, which connect the brain and two portions of the spinal cord together. It is now also determined, that many of the fibres in the nerves may be traced directly into the gray substance of the cord, a fact originally stated by Grainger, but confirmed by Budge and Kolliker.

The various nerves of the body consist for the most part of nerve tubes, running in parallel lines. Yet some contain ganglionic corpuscles, as the olfactory, and the expansion of the optic nerve constituting the retina, whilst the sympathetic nerve contains in various places, not only ganglia, but gelatinous flat fibres. The posterior roots of the spinal nerves possess a ganglion, the function of which is quite unknown. These roots are connected with the posterior horn of gray matter in the cord, while the anterior roots are connected with the anterior horns. As regards function, the nerves may be considered as—1st, Nerves of special sensation, such as the olfactory, optic, auditory, part of the glosso-pharyngeal and lingual branch of the fifth. 2d, Nerves of common sensation, such as the greater portion of the fifth, and part of the glosso-pharyngeal. 3d, Nerves of motion, such as the third, fourth, lesser division of the fifth, sixth, facial or portio dura of the seventh, and the hypo-glossal. 4th, Senso-motory or mixed nerves, such as the pneumogastric, the accessory, and the spinal nerves. 5th, Sympathetic nerves, including the numerous ganglionic nerves of the head, thorax, and abdomen,—the exact function of which has not been determined.

All nerves are endowed with a peculiar vital property, called sensibility, inherent in their structure, by virtue of which they may be excited on the application of appropriate stimuli, so as to transmit the influence of the impressions they receive to or from the brain, spinal cord, or certain ganglia, which may be considered as nervous centres. The nerves of special sensation convey *to* their nervous centres the influence of impressions caused by odoriferous bodies, by light, sound, and by sapid substances. The nerves of common sensation convey the influence of impressions *to* their nervous centres, caused by mechanical or chemical substances. The nerves of motion carry *from* the nervous centres the influence of impressions whether psychical or physical. (Todd.) The mixed nerves carry the influence of stimuli both to and from, combining in themselves the functions of common sensation and of motion. Although the sympathetic nerves also undoubtedly carry the influence of impressions, the direction of these cannot be ascertained, from their numerous anastomoses, as well as from the ganglia scattered over them, all of which act as minute nervous centres. But there *are* cases where certain psychical stimuli (as the emotions) act on organs through these nerves, and where certain diseases (as colic, gall, stones, &c.) excite through them sensations of pain.

Sensation may be defined to be *the consciousness of an impression*, and that it may take place, it is necessary,—1st, That a stimulus should be applied to a sensitive nerve, which produces an impression; 2d, That, as the result of this impression, a something should be generated, which we call an influence, which influence is conducted along the nerve to the hemispherical ganglion; 3d, On arriving there, it calls into action that faculty of the mind called consciousness or perception, and sensation is the result. It follows that sensation may be lost by any circumstance which destroys the sensibility of the nerve to impressions, which impedes the process of conducting the influence generated by these impressions, or, lastly, which renders the mind unconscious of them. Illustrations of how sensation may be affected in all these ways must be familiar to you, from circumstances influencing the ultimate extremity of a nerve, as on exposing the foot to cold,—from injury to the spinal cord, by which the communication with the brain is cut off, or from the mind being inattentive, excited, or suspended.

The independent endowment of nerves is remarkably well illustrated by the fact, that whatever be the stimulus which calls their sensibility into action, the same result is occasioned. Mechanical, chemical, galvanic, or other *physical* stimuli, when applied to the course or the extremities of a nerve, cause the very same results as may originate from suggestive ideas, perverted imagination, or other *psychical* stimuli. Thus a chemical irritant, galvanism, or pricking and pinching a nerve of motion, will cause convulsion and spasms of the muscles to which it is distributed. The same stimuli applied to a nerve of common sensation will cause pain, to the optic nerve flashes of light, to the auditory nerve ringing sounds, and to the tip of the tongue peculiar tastes. Again, we have lately had abundant opportunities of seeing that suggestive ideas, or stimuli arising in the mind, may induce peculiar effects on the muscles, give rise to pain or insensibility, and cause perversion of all the special senses.

Motion is accomplished through the agency of muscles, which are endowed with a peculiar vital property, called contractility, in the same way that nerve is endowed with the property of sensibility. Contractility may be called into action altogether independent of the nerves (Haller), as by stimulating an isolated muscular fasciculus directly. (Weber.) It may also be excited by physical or psychical stimuli, operating through the nerves. Physical stimuli applied to the extremities or course of a nerve, may cause convulsions of the parts to which the motor filaments are distributed directly, or they may induce combined movements in other parts of the body *diastaltically* (Marshall Hall),—that is, through the spinal cord. In this latter case the following series of actions take place:—1st. The influence of the impression is conducted to the spinal cord by the afferent or *esodic* filaments which enter the gray matter, 2nd. A motor influence is transmitted outwards by one or more efferent or *exodic* nerves. 3rd. This stimulates the contractility of the muscles to which the latter are distributed, and motion is the result. Lastly, contractility may be called into action by psychical stimuli or mental acts—such as by the will and by certain emotions. Integrity of the muscular structure is necessary for contractile movements; of the spinal cord, for diastaltic or reflex movements; and of the brain proper, for voluntary or emotional movements.

Thus, then, we may consider that the brain acting alone furnishes the conditions necessary for intelligence; the spinal cord acting alone furnishes the conditions essential for the co-ordinate movements necessary to the vital functions; and the brain and spinal cord acting together furnish the conditions necessary for voluntary motion and sensation.—*Monthly Journal of Med. Science, March*, 1851, *p.* 269.

---

## 24.—ON THE PATHOLOGICAL LAWS WHICH REGULATE DISEASED FUNCTIONS OF THE NERVOUS SYSTEM.

By Dr. J. H. Bennett, Edinburgh.

For the purposes of diagnosis and treatment, it is a matter of great importance to attend to the following generalisations:—

(1.) *The amount of fluids within the cranium must always be the same so long as its osseous walls are capable of resisting the pressure of the atmosphere.* There are few principles in medicine of greater practical importance than the one we are about to consider,—the more so, as many able practitioners have lately abandoned their former opinions on this head, and on what I consider to be very insufficient grounds. On this point, therefore, I cannot do better than condense and endeavour to put clearly before you the forcible arguments of the late Dr. John Reid, with such other considerations as have occurred to myself.

That the circulation within the cranium is different from that in other parts of the body, was first pointed out by the second Monro. It was tested experimentally by Dr. Kellie of Leith, ably illustrated by Dr. Abercrombie, and successfully defended by Dr. John Reid. The views adopted by these distinguished men were, that the cranium forms a spherical bony case, capable of resisting the atmospheric pressure, the only openings into it being the different foramina by which the vessels, nerves, and spinal cord pass. The encephalon, its membranes, and blood vessels, with perhaps a small portion of the cerebro-spinal fluid, completely fill up the interior of the cranium, so that no substance can be dislodged from it without some equivalent in bulk taking its place. Dr. Monro used to point out, that a jar, or any other vessel similar to the cranium, with unyielding walls, if filled with any substance, cannot be emptied without air or some other substance taking its place. To use the illustration of Dr. Watson, the contents of the cranium are like beer in a barrel, which will not flow out of one opening, unless provision be made at the same time that air rushes in. The same kind of reasoning applies to the spinal canal, which, with the interior of the cranium, may be said to constitute one large cavity, incompressible by the atmospheric air.

Before proceeding further, we must draw a distinction between pressure on, and compression of, an organ. Many bodies are capable of undergoing a great amount of pressure without undergoing any sensible decrease in bulk. By compression must be understood that a substance occupies less space from the application of external force, as when we squeeze a sponge, or compress a bladder filled with air. Fluids generally are not absolutely incompressible, yet it requires the weight of one atmosphere, or fifteen pounds in the square inch, to produce a diminution equal to 1-20,000th part of the whole. Now this is so exceedingly small a change upon a mass equal in bulk to the brain, as not to be appreciable to our senses. Besides, the pressure on the internal surface of the blood vessels never exceeds ten or twelve pounds on the square inch, during the most violent exertion, so that under no possible circumstances can the contents of the cranium be diminished even the 1-20,000th part. When the brain is taken out of the cranium it may, like a sponge, be compressed, by squeezing fluid out of the blood vessels; but during life, surrounded, as it is, by unyielding walls, this is impossible. For let us (with Abercrombie) say that the whole quantity of blood circulating within the cranium is equal to 10,—5 in the veins, and 5 in the arteries; if one of these be increased to six, the other must be diminished to 4, so that the same amount, 10, is always preserved. It follows, that when fluids are effused, blood extravasated, or tumours grow, a corresponding amount of fluid must be pressed out, or of brain absorbed, from the physical impossibility of the cranium holding more matter. At the same time, it must be evident that an increased or diminished amount of pressure may be exerted *on* the brain, proportioned to the power of the heart's contraction, the effect of which will be, not to alter the amount of fluids within the cranium, but to cause, using the words of Abercrombie, "a change of circulation" there.

Dr. Kellie performed numerous experiments on cats and dogs, in order to elucidate this subject. Some of these animals were bled to death by opening the carotid or femoral arteries, others by opening the jugular veins. In some the carotids were first tied, to diminish the quantity of blood sent to the brain, and the jugulars were then opened, with a view of emptying the vessels of the brain to the greatest possible extent; while, in others, the jugulars were first secured, to prevent as much as possible the return of the blood from the brain, and one of the carotids was then opened. He inferred, from the whole inquiry, which was conducted with extreme care, "That we cannot, in fact, lessen, to any considerable extent, the quantity of blood within the cranium by arteriotomy or venesection; and that when, by profuse hemorrhages destructive of life, we do succeed in draining the vessels within the cranium of any sensible portion of red blood, there is commonly found an equivalent to this spoliation in the increased circulation or effusion of serum, serving to maintain the plenitude of the cranium."

Dr. Kellie made other experiments upon the effects of position immediately after death from strangulation or hanging. He also removed a portion of the unyielding walls of the cranium in some animals, by means of a trephine, and then bled them to death; and the differences between the appearances of the brain in these cases, and in those where the cranium was entire, were very great. One of the most remarkable of these differences was, its shrunk appearance in those animals in which a portion of the skull was removed, and the air allowed to gravitate upon its inner surface. He says. "The brain was sensibly depressed below the cranium, and a space left, which was found capable of containing a teaspoonful of water."

It results from these inquiries, that there must always be the same amount of fluids within the cranium so long as it is uninjured. In morbid conditions these fluids may be blood, serum, or pus; but in health, as blood is almost the only fluid present (the cerebro-spinal fluid being very trifling), its quantity can undergo only very slight alterations. There are many circumstances, however, which occasion local congestions in the brain, and consequently unequal pressure on its structure, in which case another portion of its substance must contain less blood, so that the amount of the whole. as to quantity, is always preserved. These circumstances are mental emotions, hemorrhages, effusions of serum, and morbid growths. Such congestions, or local hyperhemias, in themselves constitute morbid conditions; and nature has, to a great extent, provided against their occurrence under ordinary circumstances, by the tortuosity of the arteries and the cerebro-spinal fluid, described by Magendie.

The views now detailed had been very extensively admitted into pathology, when Dr. Burrows, of St. Bartholomew's Hospital, endeavoured to controvert them, first in the Lumleian lectures of 1843, and subsequently in a work published in 1846, entitled, 'On Disorders of the Cerebral Circulation, and on the Connection between Affections of the Brain and Diseases of the Heart.' Dr. Burrows, however, evidently formed the most confused notions of the doctrine we are advocating; for, instead of stating it as propounded by its authors, he *actually misrepresented it,* as Dr. Reid pointed out. Thus, he is always combating the idea that blood-letting, position, strangulation, &c., cannot affect the *blood in the brain;* whereas the real proposition is, that they cannot alter the *fluids within the cranium.* By thus confounding blood with fluid, and brain with cranium, he has only contrived to overthrow a theory of his own creation.

Dr. Burrows has brought forward several observations and experiments, which he considers opposed to the theory now advocated. His facts are perfectly correct. I myself have repeated his experiments on rabbits, and can confirm his descriptions. It is the inferences he draws from them that are erroneous. For the paleness which results from hemorrhage. and the difference observable in the colour of the brain, when animals, immediately after death, are suspended by their ears or by their heels, is explicable by the diminished number of coloured blood particles in the one case, and by their gravitation downwards in the other. That the amount of fluid within the cranium was in no way affected, is proved by the plump appearance of the brains figured by Dr. Burrows, and the total absence of that shrunken appearance so well described by Dr. Kellie.

Neither does our observation of what occurs in asphyxia or apnœa, oppose the doctrine in question, as Dr. Burrows imagines, but rather confirms it. On this point the following observations by Dr. John Reid are valuable. He says, "If any circumstance could produce congestion of the vessels within the cranium, it would be that of death by hanging; for then the vessels going to and coming from the brain are, with the exception of the vertebral arteries, compressed and then obstructed. These two arteries, which are protected by the peculiarity of their course through the foramina of the transverse processes of the cervical vertebræ, must continue for a time to force their blood upon the brain, while a comparatively small quantity only can escape by the veins. Indeed, the greater quantity of blood carried to the encephalon by the vertebrals returns by the internal jugulars, and not by the vertebral veins, which are supplied from the occipital veins of the spinal cord; and the anastomoses, between the cranial and vertebral sinuses, could carry off a small quantity of the blood only, transmitted along such large arteries as the vertebrals. And yet it is well known that there is no congestion of the vessels within the cranium after death by hanging, however gorged the external parts of the head may be by blood and serum." This is admitted by Dr. Burrows, although he endeavours to get rid of so troublesome a fact by a gratuitous hypothesis, which will not bear a moment's examination, but for the refutation of which I must refer to the works of Dr. Reid.

On the whole, whether we adopt the expressions of local congestion, of change of circulation within the cranium (Abercrombie), or of unequal pressure (Burrows), our explanation of the *pathological* phenomena may be made equally correct, because each term implies pretty much the same thing. But if we imagine that venesection will enable us to diminish the amount of blood in the cerebral vessels, the theory points out that this is impossible, and that the effects of bleeding are explained by the influence produced on the heart, the altered pressure on the brain, exercised by its diminished contractions, and the change of circulation within the cranium thereby occasioned.

I have entered somewhat fully into this theory, because, independent of its vast importance in a practical point of view, it is one which originated in, and has always been maintained by, the Edinburgh School of Medicine. Singular to say, notwithstanding the obvious errors and fallacies in Dr. Burrows' work, no sooner did it appear than the whole medical press of England and Ireland adopted its conclusions, and even Dr. Watson, in the last edition of his excellent work, also abandoned the theory of Monro, Kellie, and Abercrombie. But so far is this theory concerning the circulation within the cranium from being shaken by the attack of Dr. Burrows, that it may be said now to stand on a firmer basis than ever, owing to that attack having drawn forth the convincing reasoning and unanswerable arguments of so sound an anatomist, physiologist, and pathologist as the late Dr. John Reid.—*Monthly Journal of Med. Science, March*, 1851, *p.* 273.

## 25.—ON THE EFFECTS OF STIMULUS ON DISEASE OF THE NERVOUS SYSTEM.

By Dr. J. H. Bennett, Edinburgh.

As a general rule, it may be said, that a slight stimulus produces increased or perverted action; whilst the same stimulus, long continued or much augmented, causes loss of function. All the various stimuli, whether mechanical, chemical, electrical, or pyschical, produce the same effects, and in different degrees. Circumstances influencing the heart's action, stimulating drinks, or food, act in a like manner. Thus, if we take the effects of alcoholic drink, for the purpose of illustration, we observe that, as regards combined movements, a slight amount causes increased vigour and activity in the muscular system. As the stimulus augments in intensity, we see irregular movements occasioned, staggering, and inability of directing the limbs. Lastly, when the stimulus is excessive, there is complete inability to move, and the power of doing so is temporarily annihilated. With regard to sensibility and sensation, we observe cephalalgia, tingling, and heat of skin, tinnitus aurium, confusion of vision, muscæ volitantes, double sight, and lastly, complete insensibility and coma. As regards intelligence, we observe at first rapid flow of ideas, then confusion of mind, delirium, and lastly sopor and perfect unconsciousness. In the same manner pressure, mechanical irritation, and the various organic diseases, produce augmented, perverted, or diminished function, according to the intensity of the stimulus applied, or amount of structure destroyed.

Thus it has been shown, that excess or diminution of stimulus, too much or too little blood, very violent or very weak cardiac contractions, and inflammation or extreme exhaustion, will, so far as the nervous functions are concerned, produce similar alterations of motion, sensation, and intelligence. Excessive hemorrhage causes muscular weakness, convulsions, and loss of motor power, perversions of all the sensations, and lastly, unconsciousness from syncope. Hence the general strength of the frame cannot be judged of by the nervous symptoms, although the treatment of these will be altogether different, according as the individual is robust or weak, has a full or small pulse, &c. These similar effects on the nervous centres, from apparently such opposite exciting causes, can, it seems to me, only be explained by the peculiarity of the circulation previously noticed. A change of circulation within the cranium takes place, and whether arterial or venous congestion occurs, pressure on the organ is equally the result. The importance of paying attention to this point in the treatment must be obvious.—*Monthly Journal of Med. Science, March,* 1851, *p.* 276.

## 26.—ON APOPLEXY.

By Dr. J. H. Bennett, Edinburgh.

The term apoplexy has been used in two senses. By the older writers and clinical observers, it was used to denote a sudden loss of consciousness and volition, independent of the various morbid lesions which may occasion this apoplectic state. By the followers of the French school of pathology, the same word has been applied to an extravasation of blood into an organ; and hence the terms apoplexy of the lung, apoplexy of the spinal cord, apoplexy of the kidney, &c. Ecchymosis of the skin, the result of a contusion—such as is present in what is commonly called a "black eye,"—is in this sense an apoplexy. I believe it better to adhere to the meaning of our ancestors, the more so as it is not always possible to determine when a cerebral hemorrhage is present. Hence cases characterized by sudden loss of consciousness and volition, coming on spontaneously, are called apoplexy. But should such cases prove fatal, and we are enabled to speak positively as to the cause of the apoplexy from post-mortem examination, then we may denominate them with more propriety cerebral hemorrhage, softening, &c. &c., according to circumstances.

The treatment of such cases is, to the rational practitioner, a subject of anxious consideration. The empirical practitioner has little difficulty,—venesection to a large extent being the established routine remedy. The advance of pathological knowledge, however, must have made it apparent, that the same proceeding is not likely to be beneficial in all cases where the nervous centres are similarly affected. We may have sudden loss of consciousness and volition from syncope, as well as from coma, the only difference between the two being, that the same nervous phenomena commence in the heart, with a weak pulse, in the one case; whilst they originate in the brain, and have a strong pulse in the other. Careful observation, however, has sufficiently proved that there are many cases of even true hemorrhagic apoplexy which are closely allied to syncope, and which have recovered under the use of stimulants, rather than of depletions. Indeed it seems to me very probable that many of those individuals who died under what Abercrombie called simple apoplexy, and in whom no trace of disease could be found in the brain after death, were really the victims of one form of fatty degeneration of the heart—an affection in his day altogether unknown. The best rule, therefore, I can give you, is to judge from all the circumstances of the case. Whenever the individual is of vigorous frame of body, if the face be flushed, and the pulse strong and full, a copious bleeding will be beneficial. The extent must be influenced by its effect on the heart's action; for as we have seen, the object of this measure is not to draw blood from the brain, which is impossible, but to diminish the pressure on that organ, by lessening the force with which the heart propels the blood through the carotid and vertebral arteries. On the other hand, if the individual be of spare habit, the face pale, and the pulse weak and irregular, wine, brandy, and stimulants, and restoratives generally, are demanded. But it frequently happens that when you are called in, neither one nor the other indications present themselves. It will be most prudent, under such circumstances, to use local bleeding, apply cold to the head, administer an active purgative, and above all, enjoin quietude.—*Monthly Journal of Med. Science, March,* 1851, *p.* 279.

## 27.—CASE OF ACUTE IDIOPATHIC TRISMUS.

By Dr. R. B Todd, F.R.S., Physician to King's College Hospital.

(Reported by H. H. Slater, M.B., Dem. Anat. K.C.L.)

The patient, Henry Franklin, æt. 40, was admitted into the Sutherland Ward on Tuesday Nov. 6th. His history was this:—On Sunday Oct. 28th, he awoke with a swollen face, and some feeling of stiffness about the jaws: he attributed this to his having caught cold by sleeping with his window open. The feeling of stiffness increased, but he was able to swallow till Sunday, the 4th of Nov., seven days after the first accession of the symptoms; and since that time he has been unable to perform the act of deglutition. On his admission (Tuesday 6th) we found him with his face very much swollen in the region of the parotids, and with considerable fœtor of his breath; and we also found, on inquiry, that he had been taking some pills with mercury (though in small quantity), in them: it is therefore very possible that he may have been one of those persons who are affected by a small quantity of mercury, and that he was in a state of salivation.

We found also great rigidity of his masseter muscles, so as to prevent him opening his mouth, and consequently, his either speaking, or swallowing. His teeth could at first be separated just so far as to slip in a card, but no farther. Moreover, we found that the effort was accompanied with great pain, which is always the case if tension is applied to a muscle in a state of contraction, as is seen in ordinary cramp, and in the treatment of club-foot: moreover, the attempt to overcome this contraction not only gave great pain, but also increased the spasm. It appeared that the muscles of deglutition were also affected, as he stated that the attempt to swallow his saliva nearly choked him.

Upon further inquiry we learned that his previous life had been temperate and sober; that he had had syphilis and secondary eruption, but no sore-throat, or nodes on his tibia or elsewhere; that he had never been subject to fits of any sort, but that he had had brain fever. This was the first day we saw him, and my apprehensions were excited as to the nature of the case; I feared it would turn out what it afterwards proved. But this supposition was very much negatived by the absence of any manifest cause for tetanus. Excepting the exposure to cold, the slight salivation, and a small abrasion on the nose, occasioned by a fall which occurred the day before the accession of his first symptoms, there was nothing to which tetanus could possibly be assigned. The wound on the nose was very slight, and may be dismissed from the consideration at once. Cold is not an infrequent cause of tetanus in tropical climates, where the alternations of temperature are great; but it is a rare cause in this climate. I have witnessed one such case, in which the tetanic symptoms were attributed to the exposure of the patient to the open air during the whole of a very cold night. It is very possible that the exposure to the open window all night might have been the exciting cause of the disease in the present instance. Might the salivation have been the cause of the tetanus? There are on record some cases of tetanus produced by salivation. But it does not appear from the history of this case that the salivation was distinctly antecedent to the tetanic symptoms.

There was, then, a certain amount of obscurity about the case, and I was not quite prepared to act at once upon the notion that it was tetanus: I therefore adopted a treatment less decided than I should otherwise have pursued. I ordered him fomentations to the jaws and throat; an enema of starch and opium at night, and beef-tea enemata throughout the day: in fact, my treatment was very much of the expectant kind.

LIBRARY

I determined to see what the next day would produce, and contented myself with dealing with the existing symptoms.

The next day we found the symptoms of spasm still the same. The jaw was firmly clenched, and attempts to open the mouth produced great pain. He was still unable to swallow his saliva, which frothed out of his mouth at each expiration. The secretion was certainly unduly abundant. All this time he was perfectly sensible, clear, and composed. He was not at all excited in his manner; and, although he could not speak, he understood all that was said, and wrote down on paper coherent and intelligent answers to all questions that were put to him.

Here, then, we had no symptom but the local affection of trismus, which might have been the effect of the local application of cold; but my fears were that it was but the early stage of a genuine case of lock-jaw, and I stated my fears to be such. I therefore determined to try tobacco fomentation, which I have frequently seen used, and with great advantage if care is taken to uphold the strength of the patient. Tobacco has this great disadvantage,—it is a very depressing agent, and therefore tends to throw the patient into that very condition which is the most fatal tendency of the disease. To avoid this, care should be taken to use the tobacco infusion weak, or the patient may be exhausted to a degree that may prove fatal.

At seven o'clock of the evening of this day, a symptom supervened which left no doubt as to the nature of the malady: it consisted in a violent paroxysm, throwing into active contraction, not only the muscles of the jaw, but also those of the neck, chest, and back, the last producing partial opisthotonos; the sterno-hyoid, sterno-thyroid, and sterno-mastoid muscles were thrown into a state of rigidity, and this condition implicated the muscles of respiration, and so far interfered with that function, that the patient felt as if he should be choked, and jumped out of bed to endeavour to get air. This choking sensation was not caused by any contraction of the glottis, but was due to the impeded action of the muscles of respiration: in fact, the man was kept in a constant state of imperfect respiration, or rather forced expiration, the consequence of which was that the venous system was thrown into a state of great congestion,—an interesting illustration of the way in which convulsion may give rise to congestion. The pupils were very much contracted *during the paroxysm*,—a circumstance of great interest, as showing a peculiar state of the nervous centres connected with the excitement of the spasm; for, as soon as the spasm went off, the contraction of the pupils went off too; and, when the spasm was at its height, the pupils were contracted to pins' points. The pulse during the paroxysms rose to 120.

From this time the case put on a more severe form: not only the permanent contraction of the muscles and all the other conditions continued, but every now and then one of the paroxysms would come on, each succeeding one being more severe and longer than that which preceded it; leaving the patient in a state of great exhaustion, and exciting in our minds the idea that he might be asphyxiated and die in one of them. If, however, there was any reason for such a fear, there was nothing to be done to obviate it; for, even had we performed tracheotomy, it would have availed little, for we should still have left the rigidity of the respiratory muscles unrelieved, which alone would doubtless have sufficed to produce asphyxia. But, in truth, death by exhaustion was the great thing to be feared: what we had most to apprehend was that which actually did take place—namely, that the increased frequency and severity of the paroxysms would at length produce a fatal exhaustion, and that the patient would sink rapidly after one of them.

The indication for treatment was therefore to *support:* and, since it was impossible to get the patient to swallow (the attempt being immediately followed by an exacerbation of the spasm), the only alternative was, in default of one entrance, to try another. I gave him, therefore, a drachm of sulphate of quinine, in a small quantity of water, as an injection; continued the beef-tea enemata, and being anxious, if possible, to diminish the pain and spasm, I ordered the frequent inhalation of chloroform,—the plan being to give it, not in large quantities, but in small and often-repeated doses, with a large admixture of air, so as to produce a gradual and soothing effect. By this means we were able to obtain resolution of the spasmodic condition of the muscles; but to arrest the paroxysms, or diminish their strength when on him, the chloroform seemed almost powerless.

At about a quarter to twelve, A.M., on the 8th, the quinine enema was repeated: at this time he was lying in an unconscious state from the chloroform (under the influence of which he was constantly kept), with his muscles relaxed, and breathing tranquilly. About five minutes after twelve a violent spasm came on, the jaws knocked together with a distinctly audible click, the face became much distorted and livid, the eyes rolled upwards, and there was much frothing at the mouth, and great apparent difficulty of breathing, the sternomastoids violently contracted, and the head thrown forwards: in a minute or two this was succeeded by a well marked opisthotonos, the body being much curved, and resting on the occiput and sacrum. In this state he died. His death may be said to have taken place by asthenia, its immediate cause being exhaustion produced by the spasm.

There was nothing in the previous history of his patient to throw any light upon the case; he had been a sober man, had had syphilis and secondary eruption, and an illness which was called brain fever, but there was nothing to indicate any disposition to the malady of which he died—nothing, either in the man or the circumstances in which he had been placed, that could be considered predisposing to tetanus. So it is in all the cases of this disease we meet with: there is no connection between the previous history of the patient and the disease; the immediate exciting cause, and detail of the symptoms, constitute the entire history of the case.

[No morbid appearance in this case seemed to offer any explanation of the disease. On examination into the state of the ultimate structure of the masseter muscles, the result proved highly confirmatory of certain doctrines first laid down by Mr. Bowman, and remarkably illustrative of the way in which the contraction of muscle takes place.]

When a muscle is thrown into a state of contraction, that contraction does not affect the whole mass of the muscle, or even the whole of any of its fibres, at the same moment, but certain points or nodes are contracted, while the intervals are not merely passive, but are stretched by the contraction of the contracted portions; so that you have a succession of contracted points throughout the entire length of each fibre of the muscle.

[Dr. Todd makes the following suggestive observations upon this case.]

Two names are in frequent use for such affections—*tetanus* and *trismus*. I prefer *trismus*, as being more specific, localising the affection and showing its restriction to the muscles of the jaw. Tetanus is a more generic name, and indicates the general existence of tonic spasm, without any restriction as to its whereabouts. Tetanus can hardly be called a very rare disease: trismus occurring in the adult *is* a *very rare* disease. In the present case the affection was for eight days confined to the muscles closing the jaw; only within a day of his death did it extend to the muscles of the neck and back; and not till the very last stage did it so affect the muscles of the back as to produce opisthotonos: whereas, in ordinary tetanus, the extension of the spasm to all the muscles generally occurs very early in the disease: opisthotonos may be a prominent symptom for three-fourths the duration of the attack; and, if you put your hand on the arms or legs of patients so affected, you find them hard, knotty, and rigid; whereas, in the present case, the affection was limited to the jaws; and I therefore prefer to call it trismus. The only essential difference between the two diseases is in the extent of the nervous centres, and, therefore, of the muscles implicated.

[This case illustrates death by exhaustion—it does not take place by asphyxia, nor by any particular effect on any special organ, but from general exhaustion, induced by the protracted and unwonted muscular exertion.]

These phenomena result from an exalted polarity of the centres supplying the parts affected. In the case of traumatic tetanus, the exaltation of the polar state commences in the afferent nerves of the part that is the seat of the wound: if the tetanus arises from cold, the exalted polarity commences in those nerves of common sensation distributed to the exposed part: from the periphery thus irritated the condition is propagated through the nerves to the centres, and the effects on the muscular system show to what portions of the nervous centres the exaltation of the polar force is communicated. This, however, does not fully explain the production of tetanus; for peripheral nerves, and even nervous centres, are often subjected to great irritation without giving rise to tetanus; and it is well known that it is impossible, even by severe mutilations, to produce tetanus in the lower animals: whereas a slight accidental injury (as when a horse picks up a nail) will often produce the disease in its worst form. It would seem that some peculiar state of the system—probably some peculiar condition of the blood—is a necessary precursor of the disease. Hence, no doubt, its greater frequency in warm and unhealthy climates, in over-crowded and ill-ventilated military hospitals, and among ill-housed, ill-fed infants.

That tetanus may be produced through the blood is shown by the results of the administration of strychnine, which exactly imitate the tetanic symptoms in every respect: so that you may at will develope the phenomena of tetanus in an animal by giving him strychnine, or injecting it into his blood, but you cannot cause it by external injuries.

The condition of the nervous centres in tetanus is, as it seems to me. best expressed by the term *exalted polarity*,—a condition which favours the undue development of the nervous force. A peculiarity of this state is, that whilst the polar state of the nervous centre is at all times exalted, it is liable to frequent fits of augmentation or exacerbation, during which more extensive effects are produced. In this way we explain the absence of any affection of the spinal cord for a considerable period, and the subsequent excitation of it in consequence of severe paroxysms affecting the medulla oblongata and its prolongations.

[Dr. Todd remarks, that perhaps he might in another case, give support a little earlier,—give a large quantity of quinine by the mouth or rectum, and, if difficulty of deglutition, throw up beef-tea enemata freely. The danger of using chloroform is, that it depresses, and therefore should be administered carefully.]

There is no good to be derived from giving those excessive doses of opium that have been used in so many cases; for, besides the negative evidence of its inutility, there is this objection to the practice—that opium given in large doses tends to call forth that very exaltation of the polarity of the nervous system which we desire to combat. This is abundantly proved by experiments on cold-blooded animals. You may throw a frog into regular tetanus by opium; and although actual tetanus cannot be produced by opium in warm-blooded animals, many circumstances tend to show that it may give rise to a state similar to, though much less in degree, than that which it can create in reptiles.

Are we to expect any good from hydrocyanic acid? I think not: and my objections to it are much the same as those against opium—viz., that it tends to exalt, and not to lower the polarity of the nervous system. Those of you who have seen the death of an animal from hydrocyanic acid will at once appreciate this objection. You will remember the violent epilepsy—the tetanic epilepsy. if I may call it so,—the combination of tonic and clonic spasm, under which the animal suffers.

The use of galvanism has been proposed in cases of this description for the purpose of depolarizing the nervous centres, and has actually been tried by Matteucci. The long-continued passage of a current of galvanism tends to weaken and to paralyse a nerve or nervous centre. if the direction of the current be the same as that of the nervous force. In the case related by Matteucci the spasmodic condition of the muscles completely subsided during the passage of the electric current.

Another part of our treatment was the application of cold over the region of the spine. Cold has a powerful effect in depolarizing the spinal cord. I have tried it with great advantage in this hospital in tetanus, in laryngismus, and in the convulsions of children. The best plan is to fill a bladder with some broken ice, and apply it directly to the spine: an intense degree of cold may be thus obtained in a very short time, and its effect on the circulation will soon be manifest, cold having a very powerful influence in diminishing both the force and frequency of the heart's action; for this reason you must not apply it too long, or too much of it; you must watch your patient, and remove it and reapply, as his condition shall indicate. The cases in which I have tried it I have found manifestly benefitted by it in diminishing the intensity of the spasms.

With regard to internal remedies, I know of nothing better than small doses of opium, belladonna, and conium. The two latter drugs certainly seem to me to have a depolarizing power, as is sufficiently obvious from their influence, especially that of belladonna, in causing dilatation of the pupil. Still, a good depolarizing agent which does not tend at the same time to weaken or depress the powers of the patient, is a great desideratum, and when discovered will no doubt prove an invaluable remedy in the treatment of tetanus. What, however, in the absence of such a remedy, the physician has principally to trust to, is, to support, in order that he may gain time to enable his patient to weather the storm, and to sustain the attacks of his disease till the source of irritation shall have ceased to exist, and its consequences have abated.

I must not conclude without calling your attention to the great importance of isolating tetanic patients, and protecting them, not only from the excitement caused by many persons surrounding the bed, but also from the influence of draughts or currents of air, or external mechanical stimuli, which are peculiarly prone to excite the tetanic spasm. These patients ought always to be put into a separate ward, and visitors excluded as much as possible. The temperature of the room should be kept at a moderate degree, and care should be taken to exclude sound, irregular currents of air, and light, as far as it can be conveniently done.—*Med. Gazette, November* 29, 1850, *p.* 911.

---

## 28.—CASE OF TETANUS IN AN INFANT.

By Dr. Nevins, Liverpool.

[This case occurred in a negro child, aged fifteen months. It awoke in the night with colicky symptoms, which excited little attention. In the morning the flexor muscles of the extremities were found to be violently contracted, though the muscles of the head and trunk were unaffected, with the exception of a slight spasmodic action beneath the eyelids. He had complained of pain in walking for nearly a week, but, with the exception of a slight diarrhœa, he had otherwise seemed quite well. On percussing the spine, tenderness was found over the two lower cervical, and one or two upper dorsal vertebræ. There was no febrile excitement.]

*Treatment.*—He was kept completely under the influence of chloroform above a quarter of an hour without the slightest effect, the rigidity continuing unabated. Three leeches were then ordered to be applied to the tender part of the spine, and a poultice afterwards. He was immersed in a hot bath, gradually raised in temperature, for above half an hour, and took *two minims* of *laudanum,* and four of spirit of sulphuric ether, *every hour.* In the evening the twitching of the eyelids had slightly increased; he had sweated profusely, and dozed at intervals, but the rigidity was not at all diminished.

Three leeches were applied to the occiput, and his head was shaved and kept cold.

Next day he was still free from pain, and intelligent; but the rigidity was not at all diminished. He showed no signs of being under the influence of opium, though he had taken about *forty minims* of the tincture. The ether had evidently produced no benefit, and the rigidity was too constant to arise from mere spasmodic contraction. The pulse was feeble, and further leeching did not appear indicated by the tenderness of the spine, but a blister was applied along its whole course He took *four minims of laudanum,* and twenty of antimonial wine, *every hour,* with the sixth of a grain of calomel; and milk diet was given.

In the evening there was little or no amendment, but he was not worse. As there seemed to be a possibility that it might be owing to the irritation of worms, a turpentine clyster was administered, the other remedies being continued hourly.

Next day the rigidity had much abated; there were no worms in the evacuations: no signs of narcotism, though he had taken *two drachms of laudanum* in *two days*; he was not sick, and was still intelligent; the motion of the eyelids was very trifling, the blister was very sore. It was ordered to be poulticed: and the opium, antimony, and calomel were to be given every hour and a half.

The next day there was continued improvement, and the remedies were given every two hours; but the following day he was worse. The rigidity had so far abated that the feet were soft, and all the fingers could be straightened without difficulty; those of one hand remained straight, but the other contracted on removing the force: he sat up in bed, and played with flowers with one hand. To day, however, he could not do this, the rigidity having returned, though not so much as at first. The bowels were irritable and often purged, and to this circumstance I attributed the falling off. The calomel and antimony were therefore discontinued, but the laudanum, in four-minim doses, was given every hour for a few times, and then every two hours. The opinion formed seemed to be correct; for, as the bowels became tranquil the rigidity again abated, and from that time his improvement has been steady. His hands are open, and his feet soft, and the toes pliable. He can move his legs, as in walking, but can not yet (ten days after the commencement) bear his own weight. His muscles are all soft and moveable, and he takes his food and chatters as usual. All treatment is for the present discontinued, and there appears every probability of entire recovery in a few days.

About a week after this report the child was thoughtlessly taken out of the house, the day being cold, and all his symptoms returned, though in a slighter degree than before. Opium, and small doses of calomel, were ordered, and the child was clothed in flannel from head to foot. In about a week he was well again; and after an interval of several months he is still strong and healthy, though, like most negro children, very susceptible of cold.

[Dr. Nevins lays great stress upon the fact, that want of proper ventilation seems to have had nothing to do with the cause of this attack, though the reports of the Dublin Lying-in Hospital, previous to the mastership of Dr. Collins, sufficiently prove, that an impure and close atmosphere is a sufficiently ample cause, one child in every three or four dying of trismus, or being affected by it. In this case Dr. Nevins thinks the cause must have been some inflammatory action in the theca vertebralis.]—*Medical Gazette, Dec.* 6, 1850, *p.* 981.

## 29.—SULPHATE OF ZINC IN CHOREA.

(Under the care of Drs. ADDISON and BARLOW.)

[In an able paper by Dr. Hughes, published in 'Guy's Hospital Reports' for 1846, the following important facts connected with the use of zinc in the convulsive disease under consideration, are stated.]

"This metal has been more largely administered than any other. In all cases, with the exception of two, which were successfully treated by the oxide, the sulphate has been the form in which it was prescribed. The dose has been increased up to thirty-six grains three times a day. It has not often caused sickness. The stomachs of some persons, however, appear unable to bear it, even in small doses; and in others the organ rebels against the increase after a certain number of grains has been attained. Zinc was prescribed in sixty-three cases. Of these it effected a cure in forty-five, or seventy-one per cent.; it relieved in two; it failed to effect a cure in sixteen, or twenty-five per cent. In seven of the forty-five cases iron had previously failed; the zinc was given together with iron in one. and with the administration of electricity in five cases."

[Dr. Golding Bird believes that zinc has a peculiar and specific influence on the nervous matter, in about the same manner as iron has upon the blood.

The first case mentioned, reported by Mr. Wood. refers to a little boy eight years of age, very weakly and strumous-looking, who was admitted into Guy's Hospital, October 11, 1850.]

About three weeks ago, whilst going to school, he was frightened by a bullock, and a few days afterwards he began to exhibit strange contortions of the body, which went on increasing in frequency and intensity up to his admission. The poor little patient was in fact constantly in motion, except when asleep. When examined, he was found very thin; skin hot and dry, and pupil dilated. The intellect was quite clear; the tongue red and injected, and protruded in a quick, sharp manner, but withdrawn quietly. The articulation was considerably affected. Pulse 76, sharp, very irregular in rhythm, with systolic murmur under the nipple. Respiration very irregular in frequency; bowels open; and appetite inclined to be voracious. The involuntary muscular twitches of all the extremities are constant.

Purgative doses of mercury with soda were administered, and a few days afterwards the patient had sulphate of zinc, galbanum pill, and extract of hyoscyamus, of each two grains, in the form of pill, one to be taken morning and midday. The sulphate was increased by half grains every other day, and on the sixth after admission the systolic murmur had decreased, and the movements were less convulsive. Wine was ordered on the fourteenth day, and on the seventeenth the patient was reported as improved in every respect; the heart's action was more regular, and the muscular contractions of the limbs hardly noticeable, except the patient became excited. On November the 3rd, the twenty-second day after admission, the little boy was beginning to feed himself; the hands were getting steady, and the respiratory movements, as well as the action of the heart, more regular. On the thirty-ninth day he could almost command the use of his limbs, taking, at the time, eleven grains of the sulphate per diem; and he was discharged December the 9th, about two months after admission, walking without any involuntary muscular contraction, and in good general health.

The notes of the second case were taken by Mr. Odling. The patient is a little boy, six years and a half old, who was admitted into Job ward, November 19, under the care of Dr. Addison. He is child of fair, florid complexion, and light brown hair; has always enjoyed good health up to a month ago, when, having been sent to a shop with money which he lost on his way, he returned home very much frightened, and on the next day strange movements were first observed. We may mention in this place that fright has certainly a large share in the causes which produce chorea; and if we turn to Dr. Hughes's excellent paper, we find the following passage on the subject;—"*Fright.*—It appears to be generally acknowledged in the profession, and it is very commonly assumed by parents, that fright is a very frequent exciting cause of chorea. As far as the table may be trusted—and as regards the particulars enumerated I believe it may entirely be trusted—this very common opinion appears to be correctly founded." The patient had never had rheumatism. We are aware that this is not the place for entering upon the consideration of the connexion which has been traced between chorea, rheumatism, and heart disease; but we shall just quote, from the Guy's Hospital Reports of 1845, Dr. Hughes's opinion on the subject. "*Rheumatism.*—Next to fright, rheumatism may be regarded among the most common causes of chorea. The connexion between the two diseases has been often noticed; and the frequent concurrence of spasmodic affections with pericarditis, which, in the great majority of cases, is of rheumatic origin, has been particularly illustrated by Dr. Bright, and more recently by Dr. George Burrows. It appears at least doubtful, whether, in most of such cases, there exist any thing more than a sympathetic affection of the spinal marrow, seeing that after the removal of the rheumatic affection the chorea is usually curable by the same remedies which are found available in cases of chorea having a different origin." Dr. Hughes states that from his table rheumatism was the cause of chorea in the proportion of fourteen per cent.

On admission it was found that the head and all the limbs were constantly being tossed in every direction; there was difficult articulation, but the convulsive moments were pretty similar in amount on either side of the body. The mind was clear; the boy never had a fit; the respiration was normal; the tongue clean, the appetite good; bowels costive; and urine normal. The first sound of the heart was accompanied by an abnormal bruit, and the rhythm otherwise regular, and the skin moist and supple.

Dr. Addison ordered a purgative dose of scammony and mercury, and soon afterwards one grain of sulphate of zinc, to be taken three times a day. On the third day, the dose was increased to one grain and a half, and on the tenth day the convulsive movements had considerably diminished, the abnormal condition of the heart was disappearing, the general health being very good. The dose was now increased to two grains and a half three times a day. On the twentieth day, the movements were but very slight, and the cardiac bruit had materially decreased; the patient now took four grains, at the same periods. On the twenty-fourth day, five grains were ordered; and on the twenty-sixth day after admission, the boy was discharged without a vestige of choreic movements, though there was still a slight murmur accompanying the systole of the heart.

We lately noticed, in Job ward, a third case, which has so remarkably improved, that we annex a short sketch of it, from Mr. Wood's notes, though the little patient is not yet quite well. This boy is fifteen years of age, and was admitted under the care of Dr. Barlow, December 18th, 1850. He is the son of a stonemason; has been subject to ulcers on the extremities, and pains in the head, but never had a fright, fall, blow, or rheumatism. For the last six months he has been engaged as waiter, with a great deal of work up and down stairs, never going to bed before twelve o'clock. He was at last obliged to leave his situation, with pains in the back and head, and difficulty of walking. His manner was at the same time altered; he would, without any apparent cause, burst out crying or laughing, and make contortions in the face, which, with twitchings of the limbs, became worse and worse, the articulation growing indistinct at the same time.

On admission he was found to be a strumous boy, of light complexion, and vacant expression of countenance, the whole frame being affected with convulsive movements, which every second caused the whole frame to be tossed in different directions. The tongue was protruded with difficulty, and it was almost impossible to understand what the patient wished to say. The right side of the body is worse than the left, and when the boy is spoken to or looked at, the paroxysms are frightful. Appetite voracious; slight pain in the head; skin hot, but pliable; pulse frequent and irregular; tongue injected round the edges, but creamy in the centre. The patient sleeps badly, but the action of the heart and lungs is healthy. After a smart purgative, Dr. Barlow ordered half a grain of sulphate of zinc to be taken three times a day. On the third day, this was increased to one grain; on the eighth, to two grains, and thus the doses were increased by one grain every other day. The boy is now taking five grains three times a day, and is almost well. As he was accustomed to take much malt liquor, Dr. Barlow allowed him a pint of porter per diem.—*Lancet, January* 11, 1850, *p.* 43.

30.—*Treatment of Chorea by Frictions with Chloroform.*—M. Gassier has published three cases of chorea cured by the topical application of chloroform.

The first was that of a child, seven years of age, in whom the disease was caused by fright. A liniment composed of equal parts of chloroform and oil of sweet almonds was rubbed, night and morning, along the course of the spine. From its first employment the violence of the muscular movements was moderated, and in six days the patient was cured.

The second case was that of a boy, twelve years of age, in whom the disease had appeared two months before as the effect of fright. The spasmodic movements were so violent that he could hold nothing in his hands, nor walk without help. At the end of a fortnight, under chloroform frictions, the disease had disappeared. A relapse, however, occurred, which was cured in two days by a return to the same means.

In a third case, of five month's standing, the result, also, of fright, the symptoms disappeared in seven days under chloroform frictions.—*L'Union Médicale, October* 31, 1850.—*Med. Gazette, November* 15, 1850, *p.* 866.

---

## 31.—ON CONVULSIVE DISEASES.

By Charles Bland Radcliffe, Esq., M.B.

*Of the Convulsive Attack.*—1. Beginning with the more simple and familiar phenomena of morbid muscular action, it is not difficult to obtain some light as to their efficient causes. Every one knows, indeed, how the teeth will chatter, and the limbs shake, when he undresses in a cold room, or goes out without sufficient clothing on a winter's day, and how much more likely these symptoms are to happen when faint and hungry from want of food. Every one knows, also, how sudden grief or alarm will of themselves bring on these movements, and how joy will nerve the frame, and make it indifferent alike to the want of food and the inclemency of the weather. In short, it is a matter of ordinary experience, that this occasional trembling of delicate persons is induced by causes which depress the system.

Nor is it less certain that elderly people are more affected by tremulousness in winter than in summer, or when kept waiting for a meal; or when startled or distressed in any manner; so that in this case also the movements would seem to betoken the withdrawal of a stimulus.

Again, it is difficult to suppose that the muscles are more vigorously excited in the moment of dissolution, or in the state which follows, than during life; so that we seem obliged to conclude that death struggles and *rigor mortis*, like the more insignificant movements of which we have just spoken, are determined by some lowering of the vital energy.

2. The appearance of any one during an attack of hysteric convulsion betrays no excitement, but, on the contrary, it is rather the death-like paleness of a person in a swoon. This, indeed, is what might be expected from the nature of the causes which determined the fit, for these, without exception, appear to be those which depress the system. It is altogether different with those paroxysms of hysteria, in which there is

raving and violent volitional action of the muscles, for here the system evidences high excitement, and the determining causes are such as are likely to induce this state; but when the attack is marked by convulsion, I believe we may seek in vain for these signs and causes of activity.

The appearance of any one during a paroxysm of chorea is equally against the hypothesis of excitement, and so also are the circumstances which lead to this paroxysm. Indeed, with few if any exceptions, we find that the immediate antecedent has been some exposure to cold, some sudden fright or unexpected trouble, or some abstinence from flesh and wine, the abstinence itself being often the reflex of a fit of mistaken asceticism.

We find, indeed, so far as we may judge from the imperfect evidence which belongs to this part of our subject, that whatever induces or aggravates ordinary tremulousness, would seem to have a like influence in hysteric convulsion or choraic agitation.

3. In an epileptic attack, the pulse at first is weak, irregular, and much slower than natural, and in some instances the action of the heart is suspended altogether. The face also is pale or dusky, the skin cold and clammy, and not unfrequently there is shuddering, with a marked disposition to faintness, or actual fainting. Then the symptoms undergo a rapid change, and the countenance becomes livid and injected, the eyes are bloodshot and half-starting out of the sockets, and the integuments of the face, head, and neck, distended in a very remarkable manner; and, lastly, the blueness and turgidity of this asphyxiated state pass off, and the circulation again exhibits the signs of collapse and prostration.

In this attack we find, also, that the convulsion is less violent and protracted in persons who approach most nearly to the sanguine habit, than in those in whom the face is pale and sallow, and the pulse small and weak; and this is further borne out by the fact, that the succeeding collapse is in direct relation to the severity of the paroxysm.

There are, undoubtedly, fits in which there is high vascular action; but these are of an apoplectic character, where coma, and not convulsion, is the dominant symptom. So far, indeed, from this being the case in pure epilepsy, it would appear as if the left side of the heart were inactive, and the arterial system almost empty,—if, at least, we are to judge from the extreme feebleness or complete suspension of the pulse at the wrist. Moreover, I am satisfied, from repeated observations, that the tumultuous throbbing in the neck, which is often cited as strong pulsation in the carotids, is in reality the reflex of the action of the right ventricle in the jugulars and neighbouring veins, the reflex itself being due to that half-open state of the auriculo-ventricular valve which is brought about by the asphyxia before mentioned.

When, therefore, we consider this evidence of suspended arterial impulse at the commencement of the fit, asphyxia during its continuance, and collapse at the close, together with the fact that the violence would seem to be in direct relation to the bloodless condition of the system, we can scarcely do otherwise than conclude that the attendant change in the vascular system is marked by reduction and not by exaltation of the normal energy.

Nor is it different with the nervous system, as we may, indeed, infer from the state of the circulation. At first the face is pale, and it is not until the fit has lasted some time, and the patient is partially asphyxiated, that it becomes injected, tumid, and livid; nay, even in the cases which are ushered in by fainting, (and these are not unfrequently the worst of all,) this paleness may continue throughout. So far as the face is concerned, (and this is a proper index of the state of the circulation within the head,) there is no evidence, therefore, of an excited state of the brain. And, as this depression extends to the entire vascular system, it follows that we must draw a similar conclusion in reference to the state of the spinal cord and other nervous centres. It is equally evident, also, that the congestion which is subsequently set up in these several centres, in consequence of the asphyxia, is not the cause of the fit; for, as Foville first remarked, the fit precedes any muscular fulness, and passes off when the congestion is at its height.

There is, however, direct as well as indirect evidence that the nervous energy is not exalted. Thus, in the majority of cases, there is no mental excitement before the fit, and in the rest the existence of such a state is extremely problematical. Generally epileptics sit or move about in a moping or listless manner, and fall down at once without any premonition, and even when more animated, the attack for the most part is not less unexpected. And where there is any warning this is generally a mysterious creeping and chilly feeling, analogous to, and often undistinguishable from, that which ushers in the initial shudderings of febrile disorders; and, therefore, if we may judge from this collateral consideration, it is a phenomenon which indicates a state the very reverse of excitement. In other ways, also, the history of the attack exhibits the want of nervous energy. Consciousness is completely lost,—and hence we must suppose the part of the brain concerned in the manifestation of this attribute to be inactive. Sensibility is suspended,—and it is necessary to draw a similar conclusion in relation to the region devoted to this function. And this being the case, it is not easy to suppose an exception as to the rest of the nervous system; at any rate we may refuse, in the evidence which has preceded, to admit the presence of involuntary convulsion as a sufficient proof.

That there is a general prostration of the nervous energy, may be argued also from other considerations. It follows, indeed, from the state of the circulation, for this involves depression of the entire bodily powers. It follows, also, from the absence of any constant signs of vascular activity among the appearances presented on death. There are in many instances undoubted proofs of active mischief, but these are to be met with where epilepsy has been complicated with mania. We may argue, moreover, that these signs are accidental so far as the epilepsy is concerned, and that the very opposites belong to the disease: and this both because the convulsive seizures occur more rarely and are less severe in their character in the maniacal patients, and because they are more frequent and violent in cases where the mind is fatuous rather than excited, and where the nervous system presents a pallid or venous appearance, with atrophy of the substance, and superabundant serosity. Do away, indeed, with non-essentials, (and the traces of mania must be ranked in this category,) and the only appearances we can detect in the nervous system are those which indicate defective functional activity during life, and these general and not local. What we find, indeed, is like unto that which supervenes naturally in advanced life; and the fact, that convulsive movements are associated with senile degeneration, is one of the many proofs of the correctness of this observation.

In relation to the antecedents of the fit, it is the same with epileptics as with persons subject to hysteria or chorea. Thus, it is not joy, but fear or fright, to which the seizures are referred; it is not to the temperate indulgence of the appetite, but to excess and abuse, with the exhaustion consequent thereon; it is not to a good meal, but to the want of it. Indeed, in many scores of cases in which I have examined minutely into the history of the attack, I have not been able to find a single instance in which the patient did not indicate some or other cause, the direct or indirect operation of which was to depress the vital powers.

So far as we can see, therefore, the accompaniments and antecedents of the epileptic attack indicate prostration and collapse; and thus this formidable malady would seem to ally itself with the simpler and more familiar conditions of convulsion which have already occupied our attention.

4. No signs of excitement are attendant upon the rigors or convulsive movements which usher in febrile affections or true fevers; and not only so, but there is positive evidence of actual depression, both of body and mind. It is evident also from the history of cholera, that the severity of the convulsion is in direct relation to this depression; and this conclusion is in perfect accordance with the history of the last stages of fever; for in this case we find that the subsultus, which made its appearance when the powers of the system began to fail, is exaggerated into convulsive struggling at the time of death.

Here, also, we cannot well suppose any focus of energy in the shivering or convulsed patient from which an excess of motive influence is supplied to the muscles; indeed, the evidence of any primary local affection is altogether wanting. Inflammation, or some similar disturbance, may arise in the progress of the malady, and this may be in the brain or elsewhere; but, as this is not constant in its occurrence, or in its locality when it does occur, and as it is obviously secondary in point of time, it is evident that it cannot be essential to the convulsion.

Analogously, we may argue as to epilepsy and the allied maladies; and we suppose that any local affections, however much they may increase the liability by aggravating the weakly state of the system, are, nevertheless, not essential to the malady itself. And not only so, but as. in the cases under consideration, we find that convulsion is incompatible with vascular excitement, so we gain additional confidence as to the correctness of what we have advanced when speaking of chronic convulsive maladies.

5. During a fit of catalepsy the appearances are so peculiar, that it is scarcely possible to avoid the conclusion that the contractions in the muscles are the anticipation of those which happen after death. Every circumstance indicates that life is upon the very verge of extinction, and the patient, to use the words of Dr. Watson, "looks like a waxen figure, or an inanimate statue, or frozen corpse."

In tetanus, also, there is no reason to suppose excitement necessary to the attack, but rather the contrary. Indeed, the fact that this happens for the most part unexpectedly, and without any warning, after a preliminary stage of depression, together with the fact, that the spasms are often unabated when the vital energy is well-nigh extinct, may be considered as arguments which tend to show that the accession is at a time when the system had become depressed to a certain point.

It is the same also with *rigor-mortis;* for in this case the accession is immediate if the strength has been previously worn away by an exhausting disease like fever, or by the slower waste of consumption or old age; but it is deferred for a long period, often for days, when a person has been cut down in the full vigour of health. In other words it would seem as if this peculiar rigidity were resisted by the lingering vitality of the system.

6. We need say little upon the mode of attack in those vaguer forms of convulsions which do not come under any of the former heads. There is nothing, however, which is not in accordance with what has been said. Indeed, a chief argument in favour of all is to be found in the epileptoid convulsions, which depend upon hæmorrhage; for in this case it is impossible to doubt that the immediate and only cause is unmodified exhaustion.

7. In conclusion: the lesson to be deduced from these considerations is, that the *convulsive attack* is accompanied, and, so far as we can judge, determined, by a depressed state of vital energy. At any rate we must admit the absence of all proof that it is dependent upon an inflammatory or congestive state of the system, whether partial or general.—*Med. Times, April* 5, 1851, *p.* 370.

---

## 32.—ON FUNCTIONAL PARALYSIS.

By Edwin Lee, Esq.

(Read before the Medical Society of London.)

After alluding to the difficulty of diagnosis between functional and structural paralysis, and also between cases of functional paralysis arising from causes of centric and eccentric origin, Mr. Lee observes, that a not unfrequent origin of hemiplegia or partial paralysis, which has been considered as depending upon congestion, effusion, or structural change in the brain or spinal cord, is a deficiency of due cerebral excitation, either from an imperfect supply of arterial blood to the brain, from causes of an exhausting or depressing nature, mental or otherwise, by which the faculty of volition is directly affected, and, in some instances, from original or long-continued inactivity of parts, in consequence of which the conducting powers of the nerves are impaired. As illustrations of these local paralyses, Mr. Lee cited dumbness in cases of congenital deafness, the slowness of speech in idiots, the destruction of life by what is termed nervous apoplexy, as an example of the highest degree of exhaustion or deficiency of nervous power, no pathological change being found at the autopsy, the utter absence of structural disease in numerous cases of paralysis, as ascertained by M. Lebert, physician to the Bicetre, and the occurrence of death, or of a privation of power in particular parts, from mental emotions, such as joy, fright, &c.—parts which, though employed in the performance of ordinary actions, or whose actions are more complicated, and require greater exertion of volition for their healthy performance, are necessarily more liable to be affected by whatever impairs the integrity of the faculty than those which are directly controlled by the will, and have a more simple office. Thus the muscles of the larynx, pharynx, of the bladder, and the sphincter ani, are more subject to loss of power from mental emotion, as in the instance of temporary privation of speech, and inability to retain the alvine contents, &c., from fear, than are the flexors and extensors of the extremities. In states of nervous weakness, or paresis, from whatever cause, flexion and extension of the limbs are much more easily performed than rotation inwards or outwards: the inferior extremities are more frequently affected than the superior, whereas the muscles of the tongue and of the face, deriving their nerves directly, and without any long *trajet*, from the central organ, are affected only in extreme cases, as regards their more simple movements. The symptoms may, however, be determined to particular parts by injuries or other local causes; these are exceptions, however. These complaints are often intractable, and but little relieved by ordinary remedies, in consequence of their peculiar nature and causes not being in general sufficiently considered. Where the remedial means are chiefly directed against the mere symptom of loss of power they will mostly fail. The patient's attention being concentrated upon the complaint, it is very often kept up by habit alone for months or years, till some circumstance or other occurs to break the chain, by exciting the faculty of volition to action. To such a change, the author referred the supposed curative power of charlatans and miracle-mongers, and, in illustration, cited the case of a young female, paraplegic for years, who was cured of her disease by immersion in the Ouse, under the superintendance of a clergyman. This, like many similar cases, the author observed, had, in all probability, been treated in a mere routine manner, and may suffice to indicate that these complaints, especially when of long duration, are more likely to be remedied by circumstances which divert the patient's attention from their consideration by mental agencies, tending to excite the torpid volition, or by any means in which the patient can be induced to have confidence; the apprehension of a painful or disagreeable application, as of the actual cautery, or of blisters, has sometimes a beneficial effect; whereas, the excessive sympathy of relatives and friends, the too minute attention on the part of the practitioner to particular symptoms, and a purely pharmaceutical mode of treatment, will invariably tend to retard recovery.

[Dr. Forbes Winslow objected to the term functional, according to the signification attached to it by the author of the paper. He could not conceive how any function could be disordered *per se*: it must be, in obedience to recognised physiological laws, invariably the immediate consequence or effect of an altered physical condition of organic matter.]

He (Dr. Winslow) thought that every action of the nervous fibre or tissue was associated with, or the immediate result of, a molecular change in the part. Such was the particular condition of the *motor* nerve, when volition was transmitted from the sensorium to a distant portion of the body, and of the nerve of sensation when impressions were conveyed from remote parts of the frame to the great nervous centre. He argued that there existed a healthy or normal function of a nerve, to which physiologists applied the name "molecular;" and that any deviation from the natural healthy or normal function of the nerve must be either the direct effect of, or be invariably associated with, an abnormal condition of the molecular action. In paralysis, however trifling in its character, he thought there was always some deviation from the healthy and normal condition of some portion of the nervous tissue. This deviation or change often escaped the most minute microscopic examination. Changes often took place in the delicate structure of the vesicular matter—particularly of the nucleated nerve-vesicles, which set at defiance the careful scrutiny of the pathologist. Paralysis often depended upon a minute alteration in the arrangement of the nervous fibres—a slight effusion in the sheath of the nerve, or an affection of the nervous pith, or congestion of the delicate tissue of the nerve-tube, or vesicle, or cell. Again: paralysis, and other affections termed nervous, might be the result of some modification of the *vis nervosa* itself. The "nervous fluid," or "energy," or "force," as it was variously designated by physiologists, we had every reason to believe to be a blood-product. Any altered condition of the blood, any important change in its vital properties, would, as a matter of course, modify, and materially alter the nature and condition of the nervous fluid itself, admitting it to be a secretion from the blood. A large quantity of blood was sent to the vesicular portion of the brain, where we had every reason to believe the nervous force to be generated. May not paralysis and other disorders of the nervous system be connected with a modification or unhealthy condition of the nervous energy itself, consequent upon a vitiated state of the blood? Poison circulating in the blood, like that of lead, would derange the action of the nerves, and give rise to paralysis. The nerves themselves were susceptible of organic change, such as atrophy and hypertrophy. In long persistent sciatica, and in neuralgic affections of other nerves, an atrophied condition was occasionally detected after death. He argued that we were not justified in asserting that no pathological or organic change had taken place in certain nerves, whose functions were greatly disordered, unless the most minute examination was made into the weight of the brain, its alterations in colour (often the only indication of organic mischief), or chemical and anatomical character of the different nervous tissues. He had no doubt that the modification or change in the nervous matter, inappreciable to the naked eye or the microscope, indicated by what is called "functional" disturbance of the nervous system, was frequently owing to some altered state of the chemical constituents of the nerve-fibre or vesicle. He instanced the effect of the presence or absence of phosphorus in the brain, asserting that in early life it existed in its minimum extent; in the middle period of life, when great activity of mind was exhibited, it was found in larger quantities; and in old age and idiocy, the smallest portion was detected in the cerebral matter. In states of great mental depression, he thought the normal proportion of phosphorus was lessened. The pathology of the brain, in cases of paralysis, was involved in considerable obscurity. Physiologists had succeeded in establishing, by means of experiments and careful pathological inquiry, the special function of certain portions of the brain. It was generally admitted that no effusion or extravasation could take place either in the *corpora striata* or *thalami* without the immediate effect being paralysis. In considering the subject under discussion, it was important to diagnose successfully between *cerebral* paralysis and *spinal* paralysis, and those affections of the afferent and efferent systems of nerve which commence in the periphery of the nerves themselves, and are termed circumferential. In forming a diagnosis, it was most important to keep in recollection certain important and well-established physiological axioms. To Dr. Marshall Hall the profession was greatly indebted. This distinguished physiologist, after careful and patient investigation, had established, that in cerebral paralysis, when the influence of the brain is removed, there is always to be found augmented irritability, with increased tonicity of the muscular fibre, emotional influence remaining nearly intact. In spinal paralysis the influence of the brain, as well as the spinal marrow, is removed. Under these circumstances there is diminished irritability, as well as a diminution of muscular tonicity. In paralysis commencing in the remote expansion of the nerves, often extending to the brain itself, it was generally discovered that sensation was more affected than motion. By keeping these important physiological truths in mind, and connecting them with the early history of cases of paralysis, the physician would, even in cases apparently obscure, find little difficulty in forming a successful diagnosis between those lesions of motion and sensation which respectively have their origin in the brain, spinal marrow, or in the periphery of the nerves. He directed the attention of the Society to a form of mental disease which had not sufficiently attracted the attention of the physician. He alluded to a morbid condition of mind connected with a sudden loss of all power over the train of thought. This state was distinct from insanity, there being no aberration of idea, and it was also, in its pathological character, different from dementia, or that loss of mental power generally connected with softening of the brain. He termed it mental paralysis. Without any apparent cause, or the existence of precursory symptoms, the patient, whilst engaged in conversation, suddenly has his ideas completely paralyzed. This was generally temporary in its duration. He thought it associated with an anæmic condition of the brain, and a non-fibrinous state of the blood, and was to be cured by rest, and the exhibition of mineral and metallic tonics. The speaker made some remarks in conclusion on the necessity of using with extreme caution depleting remedies in cases of paralysis, and considered that most forms of cerebral disease, particularly those connected with mental derangement and paralysis, were combined with an exhausted condition of the nervous and vital energies.—*Lancet, Jan.* 11, 1851, *p.* 45.

## 33.—ON PARALYSIS AGITANS.

[The following article is from one of the original communications published in 'The Institute.']

Paralysis agitans is emphatically a disease of emotion. Emotion is its first and last cause; without emotion it would never be called into existence, or being once induced, it would never manifest itself. This at least is true, of its first phase; whether any physical lesion may supervene in its protracted course, remains a deeply interesting question. In one case, paralysis agitans arose from the irreparable loss of a bereaved wife. In another it was induced by the mortifications and vexations arising out of a disputed election. In its earlier stage, the peculiar symptom of this disease is seen, or most seen under every circumstance of emotion, but ceases whenever emotion ceases, or whenever this is superseded by an energetic act of volition, or by a firm act of resolution.

Alone, reposing, asleep, the agitation is absent. It is renewed when cause of emotion comes into operation. It frequently subsides in the society of the patient's immediate relatives or friends, as his wife and children, and is re-exerted on the appearance of a visitor, or a stranger. It is especially apt to be renewed on the appearance of certain persons whose presence or conversation recall agitating ideas: in one case, the presence of the patient's keeper, agent, or physician, had the most marked effect in inducing the agitation and shaking, the conversation with those persons being the most attended by emotion.

I have said that the shaking is subdued by a fresh act of volition. If the patient firmly extends the arm and hand, and firmly retains it in its new position, all shaking ceases; but the agitation returns as the force and firmness of the volition subsides, and the patient, with less firmness and volition draws back his hand.

The agitation ceases too for a short time, if by firmness of purpose the hand is allowed to pass on to inaction,—to fall on the knee, for example.

The symptom subsides, in a word, when its cause, emotion, is superseded by another and an energetic idea.

But we live, unconsciously almost (and infinitely more than is generally supposed), a life of emotion. Every moment brings its agitating thought, every day brings its anxious care. But in the disease in question, there is by original temperament, and in induced morbid excitability, augmented susceptibility to its influence; and events, which, in health, induced no manifestation of their power, become obvious in their peculiar effects on the nervous and muscular systems.

The peculiar shaking, and the equally peculiar powerlessness, or shall I call it paralysis, cease on giving *confidence* to the patient. I may here adduce an anecdote:—A gentleman, a magistrate, confined to his chair by paralysis agitans, wished to consult a legal book. He asked for it, and his servant gave it to him, as he supposed. On opening it, he found it the wrong book. In his anger he rose from his chair, and reached it himself. Surprised at discovering his power of walking, he endeavoured to repeat the experiment, and, remembering that before he had risen from his chair, he had rather violently closed his book, he repeated this manœuvre, and ever since, on doing this—but only on doing this—he regains his power of walking.

One patient could walk whenever he pleased, with the tips of his fingers even merely on his wife's arm, but not otherwise.

All the movements of the patient afflicted with paralysis agitans are quick and energetic; his walk becomes a run: his power consists in an *energetic* volition.

It is essential to replace an (unfounded?) conviction in the patient's mind, that he is powerless, by another, viz., that he really possesses power, the circumstances being changed. The prepossession—the depressing emotion must be removed, and replaced by an emotion of the opposite kind.

In speaking of emotion as the cause of paralysis agitans, we ought to notice that this emotion is of the painful and agitating kind, and not unallied to fear and vexation. The elevating emotions or mental states, as hope, confidence, energy, have a marked beneficial effect. The movements made with firmness and resolution are always least attended by agitation.

There is, in consequence, a disposition in this malady, to rapid movement. The patient is apt to *run* instead of walking deliberately. An energetic volition overcomes the influence of emotion; volition of less energy is more or less defeated by emotion in its turn.

At first the head and the arm or arms are most affected; afterwards other parts and limbs are involved in this dire malady. At length the power of the lips in articulation, of the fingers in writing, in dressing and undressing, and in using the knife and fork, of the muscles which support the head, of the pharynx, of the rectum, of the sphincters, &c., becomes diminished. At length, too, there is agitation during sleep, which is apt to be disturbed by the movements. Or it may be, that disturbed sleep or dreams—the emotion of sleep—may add to the agitation of the head or limbs, which may, in its turn, interrupt the sleep.

The extraordinary fact in regard to paralysis agitans is, that though it consists in undue excitability of the spinal centre, this undue susceptibility, as it is caused, so it is affected by emotion and emotion only. This susceptibility does not extend to the centre of the diastaltic actions. In this respect, as in its chronic character, it differs from tetanus, whilst it agrees, though not in its causes, with chorea.

It is singular that emotion being the cause, the seat of the emotion, the seat of the disease, the heart and other organs so constantly under the influence of emotion, is not more affected.

The paralysis agitans has hitherto made an exceedingly slow, but not the less fatal, progress.

Unfortunately, we possess no *post-mortem* examinations of this disease. I suspect no morbid lesion would be detected. No such lesion, hitherto known, would lead to the peculiar phenomena of this malady, except towards its close, when a sort of general paralysis takes place, which may be the effect of effusion and consequent pressure. I ought not to pass by unnoticed the 'Essay on the Shaking Palsy,' published in 1817. Mr. Parkinson seems to have had no idea of the real cause of this disease. He made no *post-mortem*, and the case of Count de Lordat, in which a *post-mortem* was made, was a case of accident, and not of shaking palsy; the patient "was as capable as ever of writing, and, indeed, presented no pathognomonic symptoms of that disease." Still Mr. Parkinson's essay is one of great merit and originality.

As emotion is the original and the continued cause of this trying malady, an important question arises,—What would be the effect of a sustained removal of all sources of emotions, if, and when this may be possible?

As in cases of undue susceptibility to light, we place the patient in a room, from which every beam of light is excluded, why should we not remove the patient afflicted with paralysis agitans from every source of emotion—and this for a sufficient time to allow undue excitability to subside, and to give a sufficient opportunity for the administration of remedies?

Seclusion in a cottage, a judicious companion, books of quiet interest, repose in the nearly recumbent position (the head especially being supported), free exposure to the open air, the gentlest exercises, the farm, the fields, the garden—the plants, the corn, the cattle, the poultry (not his own). It becomes an important question also whether the shower bath, the douche along the spine, &c., &c., may be useful; various sedative or narcotic medicines long given to subdue emotions, as we would give them to subdue pain, in stated forms and doses, regularly and systematically.

The bichloride of mercury, quinine, strychnine, &c., should be put to a cautious trial by competent judges.—*The Institute, Jan.* 4, 1851, *p.* 1.

34.—*On the Influence of Large Doses of Quinine in Neuralgia.*—By Charles Hogg, Esq.—[Mr. Hogg, speaking highly of this drug, describes it as a sedative to the vascular, but highly excitant to the nervous system. Before commencing its administration, he clears out the alimentary canal by a calomel and colocynth aperient, followed by a saline draught, and in the interval of the cold stage, he advises the following draught to be given every six hours:—Sulphate of quinine, ten grains; dilute sulphuric acid, ten minims; distilled water, one ounce; mix. Mr. Hogg states that he has seldom had occasion to give more than two doses. The following case is given as a sample of its efficiency:]

*Neuralgia.*—My patient is twenty-five years of age, and had been for some time back complaining of debility, owing, in my opinion, to her suckling and want of rest. She caught a severe cold about Christmas last, which terminated in a violent attack of toothache, resisting every measure I could think of. A few hours' remission followed the extraction of the dens sapientia and free scarification of the gums. The pain now assumed a different character, and was marked by a violent, stabbing, plunging pain, beginning at the left angle of the under jaw, running along the ramus, and extending upwards in the course of the facial nerve; at other times the pain would be fixed behind the ear, again in the temple,

&c., and increased (and even brought on) by the slightest touch of the skin or current of air. An attack would sometimes come on like an electric shock, preceded occasionally by a peculiar twitching of the muscles of the affected side of the face. The loss of sleep and the violence of the pain had disordered the secretions generally. The digestive functions were restored by a pill, composed of two grains of blue-pill, and five of compound extract of colocynth; and a draught, composed of extract of taraxacum, sulphate of magnesia, and tincture of ginger, continued for a few days. I endeavoured to procure sleep by Dover's powder, acetate of morphia, hyoscyamus, &c., but without success. A slight mitigation of the symptoms were produced by a draught, ordered by my friend Mr. Gay, composed of sulphate of iron, two grains; muriate of morphia, one-sixth of a grain; extract of Canabis Indica, one-twelfth of a grain: it could not be continued, as it seemed to disagree with the child. I had before this prescribed carbonate, sulphate, and citrate of iron, but without avail. I then determined to try the quinine in large doses. She took a draught as follows:—Quinine, ten grains; dilute sulphuric acid, ten minims; distilled water, one ounce. This was followed by distinct remission of the pain, but left a high degree of erethism, a distressing irritability of the acoustic and optic nerve of the affected side, with slight vertigo. Before proceeding further, I obtained the sanction of my friend Dr. Elliotson, who advised the medicine to be continued every sixth hour,—the first dose, ten grains; the next, twelve; and the third, fifteen. After the third dose—that is, the twelve grains, as she had taken two of ten grains—she was completely deaf, particularly on the left side, but had no return of the pain. Generous diet completed the cure. During the last month there has been a slight tendency to a return, which, however, has invariably yielded to two draughts of five grains each. No argument would induce my patient to give up nursing. *Lancet, November* 23, 1850, *p.* 575.

## 35.—ON THE SEPARATE COURSE OF SENSATION, VOLITION, AND THE INVOLUNTARY POWER. FROM AND TO THE BRAIN, THE OBLONG MEDULLA, AND THE SPINAL CORD.

By JOSEPH SWAN, Esq.

The oblong medulla may be divided into four principal parts. The anterior central part forms the pyramidal bodies; these, with the crura of the brain, give origin to several motive nerves, and may be called the voluntary tract. The posterior surface forms a layer which contains the floor of the fourth ventricle, and forms a bed for the origin of the auditory nerve, and a great portion of the fifth; this may be called the sensitive tract. Between the two preceding tracts there is a large ganglion or case, filled with grey and white matter; and this may be called the involuntary tract. Besides these, there are at the sides the restiform bodies, principally derived from the cerebellum; but it is not intended further to notice them.

The sensitive tract in the oblong medulla is a layer of moderate thickness. It passes upwards as far as the nates, and then obliquely across and underneath these to the inner and posterior margin of the thalamus; it here forms a cord as thick as a swan's quill. It passes outwardly across the thalamus, underneath the optic tract; it sends off a layer of wavy tracts or lines underneath the epithelium of the posterior and descending horns of the lateral ventricle, and is then intermixed with the white matter of the posterior lobe of the brain.

The voluntary tract, after forming layers in the annular tubercle, and combining with the inferior pedicle of the cerebellum, forms the external portion of the crus of the brain, especially that bounded by the involuntary tract and the black matter. The larger part of it passes upwards, communicating freely with the middle and broad portions of the striated body, in its course to the white matter leading to the great commissure and the convolutions of the brain.

The involuntary tract forms, in the oblong medulla, between the sensitive and voluntary tracts, a broad thick triangular and somewhat heart-shaped ganglion or case, having partitions filled with grey and white matter: below, it sends processes downwards, to pass at the bottom of the longitudinal fissure between the two anterior quarters of the spinal cord. Opposite the crura of the brain it divides into two portions, each of which is a cylinder, containing pouches filled with grey and white matter. On arriving at the thalamus, each passes outwardly and anteriorly to the sensitive tract; at this part the cylinder forms a distinct ring, from which the involuntary tract is continued across the thalamus, between the sensitive and voluntary tracts; and after communicating with the narrow end of the striated body, becomes combined with the white matter leading to the great commissure and the convolutions of the brain.

In the horse, ox, pig, and sheep, the sensitive tract passes from the posterior surface of the oblong medulla nearly as in man; it forms an expansion underneath the epithelium lining the posterior horn of the lateral ventricle, and the rest is combined with the white matter corresponding with that in the posterior lobe of the brain of man.

The voluntary tract in animals is very similar to the same in man, except that it undergoes a more simple change in the smaller annular tubercle on becoming combined with the inferior pedicles of the cerebellum.

The involuntary tract in animals is a most curious and interesting structure. It is firmer than any other part of the brain, and, in external appearance, very much resembles a ganglion of the sympathetic nerve. It begins in the thalamus, at the ring by which the soft commissures communicate. It is surrounded by the third ventricle, and its continuation downwards lies beneath the passage from the third to the fourth ventricle. In the fourth ventricle it lies immediately underneath the central part of the sensitive tract. At the ring it forms a large, round, or oval case of white matter; this is composed in the centre of oblong cells, plainly distinguished by the naked eye in the horse; and into these the grey matter of the soft commissure enters, for connecting their two sides. The ring is very large in the horse; it is connected to the nucleus of the white matter of the brain anteriorly, and with the tænia, and through this with the sensitive tract. From the posterior and outer side of this case white fibres pass off, which go through the narrow end of the striated body to the white matter leading to the convolutions; these fibres correspond with the same termination of the involuntary tract in man. Both sides of the lower end of the case become concentrated in a large ganglion, of the size of half a swan's quill; this is soon joined by a similar ganglion from the opposite case. The ganglion thus formed contracts to the size of a goose's quill; it then enlarges again in the oblong medulla, and assumes an oblong and pyriform shape, the narrow end being continued into the spinal cord, where it lies in the bottom of the longitudinal fissure formed by the two anterior quarters. The case and ganglions communicate by numerous fibres, especially laterally, with the contiguous parts of the brain, and with the oblong medulla and spinal cord. In the ox the case and ganglia are similar but less. In the sheep they are also similar, but less than in the ox. In the pig the same parts are also similar; the ganglia are not quite so large as in the ox, and are less oval in shape. This large ganglionic mass appears as if it were the source of vital power—for giving energy to all the other parts—for exciting involuntary action constantly in some parts through the fibres it sends through the narrow end of the striated body—and for calling into action all the other parts, when any necessity arises for their assistance.

This brief paper is the result of very numerous dissections and is an outline of my very constant occupation for many months.—*Med. Gazette, February* 21, 1851, *p.* 323.

## 36.—CASE OF SYPHILITIC DISEASE OF THE DURA MATER, AND EXTERNAL PERIOSTITIS.

By Dr. R. B. Todd, F.R.S.

[This is a case of peculiar importance and interest. We have first primary and then secondary syphilis; then periostitis, first of external parts, and then affecting the dura mater; and then symptoms of brain disease, both local and distant.

The patient had contracted syphilis fourteen or fifteen years ago, and had a chancre and a bubo. He took a large quantity of mercury without medical advice, and was freely salivated. From many consequent evils attendant upon this disease he seems to have escaped pretty well, and no unfavourable symptom occurred until five years ago, when he applied to one of the metropolitan hospitals for contraction and rigidity of the flexor muscles of his right fore-arm, and numbness in the same region. The nature of the case was here mistaken, and after leaving this he went from one hospital to another, but got no relief. At length he met with a friend who had suffered in a similar manner, who gave him a prescription, the medicine of which had cured him. He accordingly took it in the prescribed dose and was cured in three weeks. The medicine turned out to be iodide of potassium. Ultimately he sought work in Ireland, and there, about four weeks ago, he had a fit, preceded and accompanied by severe pain in the head. He became alarmed, and returned to London, and was made an in-patient of

King's College Hospital, on the 5th of May, 1849, where his complaint was recognised by Mr. Bowman, who prescribed the iodide of potassium.]

On his admission he appeared in a very low condition: his face was pallid, and he spoke tremulously: he complained principally of pain in his head, situated in the region of the left parietal bone, and also of great pain and tenderness over the head of the fibula of the left leg. The pain in the parietal region was not increased by pressure, but the region of the head of the fibula was much swollen and extremely tender to the touch. The pain both in the head and the fibula was severe, and became much aggravated at night, so as to deprive him of his rest,—a symptom bearing distinctly on the diagnosis. The situation of the pain in the leg was marked by a swelling of considerable size, which appeared to implicate not only the periosteum, but the ligaments of the joint and the fasciæ. At the situation of the pain in the head, there was nothing to be seen or felt; there was no evidence of inflammation affecting the pericranium; but the pain was very defined both in character and in situation; it was fixed with variable severity in the parietal region, and never left it nor extended beyond it.

In addition to these symptoms, there was a very remarkable state of the *right* forearm—the side, you will observe, opposite to that on which the pain in the head existed. The muscles of the forearm were all in a rigid state, and the fingers forcibly bent into the palm of the hand, the flexor tendons being rendered quite tense by the firm contraction of the muscles. Moreover there was a good deal of numbness of the forearm, and the rigid state of the muscles both impeded their action and weakened them. There was, in fact, imperfect paralysis both of sensation and motion.

So far, then, we have all the history of the case which can bear upon or be necessary for the diagnosis. I regret that we omitted to make inquiry into one point very interesting in reference to general pathology. He had been married within the last few years; but it was neglected to inquire whether his wife had become pregnant, and whether she had gone her full time, and borne healthy or diseased children. That a man still tainted with syphilis will beget syphilitic children without exciting primary symptoms in the woman, is now well known; and the tendency which women, impregnated by such men, have to miscarriages is also a fact of great interest, especially with reference to the laws of the humoral pathology.

Now the existence of periostitis was quite evident, from the large swelling over the head of the fibula; and the history of the case, the aggravation of the symptoms at night, the influence of iodine, made this part of the diagnosis easy and certain; but what was the connection between the periostitis and the condition of the arm? Was it dependent on some local change affecting the periosteum of the bones of the forearm, and the tendons of the muscles, and perhaps also the nerves, or is it due to some morbid state of a distant part—the brain for instance? I thought for a moment that the contraction and partial paralysis of the forearm might have been dependent on irritation from periostitis affecting the part itself; but very little reflection convinced me that an affection so extensive, and of such long duration, was not likely to result from a local cause, nor could I call to mind any case in which such symptoms resulted from a cause of that kind. On looking further into the case I came to the conclusion that the affection of the arm was caused by syphilitic inflammation of the dura mater—the internal periosteum of the cranial bones—in short, an intracranial node—causing pressure on the surface of the cerebral hemisphere, and giving rise to paralysis, with irritation, and consequent muscular rigidity.

This diagnosis was founded on the following points, which our investigation of the case enabled us to make out. First, there was paralysis not only of motion, but also of sensation: this denoted that the paralytic state was due to an affection of the *nerves* rather than of the muscles. Secondly, we could trace no evidence of node, or other periosteal affection of the bones of the forearm; therefore. a local cause was unlikely. Thirdly, the general history of the case distinctly denoted an affection of a syphilitic nature. And lastly, the fixed and constant position of the pain in the head, situated as it was on the side opposite to that on which the paralytic affection existed, indicated mischief in that situation. The occurrence of epileptic fits after the pain in the head and the affection of the arm had existed for some time, evidently associated that pain with cerebral disturbance.

The train of phenomena in this case was as follows. There was first syphilitic inflammation of the dura mater: this was slow and insidious in its progress, and did not at first cause any great pain: it then produced a certain amount of node; and this, by its pressure upon the surface of the hemisphere, caused irritation and paralysis, accompanied by spasm and rigidity; and, as the pain in the head increased, the paralysis both of sensation and of motion increased. The paralysis, imperfect as it was, and accompanied by rigidity, was just such as would arise from pressure on the *surface* of the brain.

I think, then, there can be no doubt that in this case we had syphilitic inflammation of the dura mater, exactly analogous to that affecting the periosteum of the fibula. Idiopathic inflammation of the dura mater is extremely rare: indeed, taking the word *idiopathic* in its strict sense, as implying the absence either of constitutional taint, or the introduction of poison from without, I should say it never occurred. Besides local injuries, scrofula and syphilis are the two common causes of inflammation of of the dura mater: of the scrofulous form we sometimes meet with an example in that produced by otitis spreading from the ear to the cranium, the primary disease being almost always scrofulous in its origin. Indeed, the further we advance in our knowledge of pathology the more we must give up ideas of idiopathic inflammations, and the more constantly do we find inflammatory affections to be due to some defect in the excretory functions, or to the introduction of some morbific material.

If anything further could be wanted to establish the correctness of the diagnosis, that is supplied by the perfect success of the treatment which was based upon it. From the history he gives us it appeared that his symptoms on a former occasion yielded to the influence of iodine. On his admission into the hospital he was put upon three grains of iodide of potassium three times a day. The effect was most marvellous: almost as soon as it was given to him the symptoms began rapidly to give way, as the following daily report shows:—On the ninth, three days after admission, the report is that the patient seems decidedly better, has an appetite, pain easier, looks better, sleeps well.

On the 12th.—Better in every way; is able to use his arm; pain in the head gone, in the leg less; swelling diminished.

17th.—Better in every way; pains in the head and leg quite gone; sleeps, eats, and drinks well.

19th.—Quite well in every respect.

Now, if we had failed in our diagnosis, we might have kept this man for weeks in the hospital without doing him any good, and perhaps sent him away just as he entered, instead of dismissing him cured of his malady, and in a state fit to resume his ordinary avocations. Nothing can give a clearer idea of the importance of correct diagnosis than the history of a case like this. If the disease had not been arrested, it is probable that more lymph would have been poured out upon the dura mater—the pressure would have been augmented—the fits would have recurred, and the epilepsy instead of being transitory, would have become confirmed: in fact, it is impossible to say where the effects of the disease would have stopped: whereas, by a careful investigation of the case, a due appreciation of the indications furnished by its history, and the administration of a small quantity of a harmless medicine, the man is restored to perfect health. If any one were inclined to attach but little importance to correct diagnosis, the instance of such a case as this is all that is necessary to prove the danger and absurdity of such views. It shows that the great step towards cure is the right understanding of the nature of the disease with which we have to grapple.

Now I ask the question—What has been the exact state of the dura mater in this case? I think the best way to answer this is to give you an account of the history and post mortem examination of a case that occurred in my hospital-practice some years ago. These cases are generally capable of cure if detected early; but if allowed to go on too long, new products are formed which permanently damage the brain, and are not susceptible of cure. The case to which I allude is as follows:—

A woman, aged thirty-one, was admitted into the hospital some years ago, suffering from the following symptoms:—great loss of memory, fits, imperfect palsy of the left side, and pain in the right parietal region. She was a married woman, and had lost her husband, and she attributes her illness to grief from this cause. About this time, which was between five and six years before her admission, the pain in her head began. She led an irregular life, was intemperate, and of easy virtue, and contracted syphilis, and had chancre, sore throat, papular eruption, and nodes on the tibiæ. Two months before her admission, she had her first fit: it came on shortly after she had eaten a hearty supper. She became insensible, was much convulsed, especially on the left side, bit her tongue, and after the convulsions had ceased she remained in a drowsy state for twelve hours. After this, the pain in her head increased considerably, and was more fixed and defined: it was referred to the right parietal region. The fits likewise recurred frequently; they were always preceded by a sense of painful numbness in the left hand and foot. The *right* pupil was occasionally more dilated than the left, and the right upper eyelid hung lower than the left, as if the third pair of nerves on the right side were slightly affected.

This woman became more and more comatose, and had a severe fit in the hospital, from which she never rallied. On a post mortem examination we found the dura mater firmly adherent to the cranium, and also to the visceral layer of the arachnoid, for an oval space two inches in its long, and an inch and a half in its short diameter. At this part the dura mater was three or four times its natural thickness. Between the layers of the arachnoid there were two large masses of a yellow colour, like concrete pus, opposite to which were corresponding depressions or concavities on the surface of the cerebral hemispheres. At these points the cerebral substance was slightly softened, and redder than is natural. At the corresponding point on the opposite side of the skull a similar morbid alteration in the dura mater and the arachnoid was commencing. There was no disease in any other part of the brain.

Now this is a good typical case illustrative of the way in which syphilis may affect the parts within the cranium, and the extent, when not early arrested, to which it may proceed. The dura mater, like any external periosteum, becomes affected by the syphilitic poison; then follows arachnitis; and lastly, cerebral compression and perhaps red softening. No doubt changes of this kind would have taken place in our patient (Baglin) if the progress of his disease had not been arrested. If the woman, whose case I have just related, had come into the hospital three or four months before the time she did, and had been put under a course of iodide of potassium, we cannot doubt that she would have completely recovered.

Let me give you another example of such a case, in which the disease had not gone so far as to be beyond the power of remedies. The patient in this case was a young man, who followed the business of a chemist and druggist. There was a distinct history of syphilis. He had experienced a good deal of pain in the right parietal region, which was treated as neuralgia. From this treatment no benefit resulted, and shortly afterwards he began to suffer from imperfect paralysis of the left arm and leg; and I noticed decided thickness of speech, his manner became dull, and his spirits much depressed. The paralysis then became general on the left side, affecting his face, and his scalp became tender over the painful region. I determined to put him under treatment calculated to relieve inflammation of the meninges, and accordingly gave him calomel and opium, and applied tartar emetic ointment to his head. In ten days his paralysis had vanished, and all his other symptoms had left him.

There is another case which you have frequent opportunities of witnessing, as he is a frequent inmate of the hospital: his name is Coulson, and he affords a good example of very complete paralysis of the fifth nerve of the left side. I have no doubt that syphilis is at the root of the disease in this instance too. The man is subject to epileptic fits, the immediate exciting cause of which is intemperance. I think the exact diseased condition in this case is syphilitic inflammation of the dura mater in the vicinity of the fifth nerve and the Casserian ganglion; that lymph has been poured out which presses upon the ganglion, and, including both the sensitive and motor portions of the nerve, suspends alike their respective functions.

There are one or two more points touching cases of this class, with which I will conclude what I have to say to you to-day.

And, first, as to the causation of the epileptic fits which occurred in three out of four of the cases I have related, and which I can scarcely doubt must have occurred in the fourth case had it been suffered to proceed much further. The occurrence of epileptic fits in such cases as these appears to me to denote that the brain itself is involved in the morbid action, either by extension of irritation from the diseased parts, or by the direct influence of the syphilitic poison; but in all the cases the simple existence of the diseased state of the dura mater did not seem sufficient to cause the fits. The morbid process had been of long continuance in the dura mater before the fits began. They seem to have been brought about by causes operating on the whole system—upon the blood—upon general nutrition and upon that of the brain in particular which must have already suffered a good deal by the neighbouring disease of the dura mater.

In some cases of meningeal disease, especially, I think, when the pia mater is previously affected, we meet with fits of a very remarkable character: I have called them *epileptiform*. One arm, or both arm and leg on one side, become seized with convulsive movements, quite of the clonic or epileptic kind. These come in paroxysms; the paroxysm lasts a variable time, and then subsides, leaving more or less general exhaustion and disposition to sleep; but consciousness is not impaired. Yet there can be no doubt that such fits may pass into the true epileptic fit; for it is not rare to see a very complete epileptic fit commence with some local derangement of sensation or motion, or both.

Secondly, the extraordinary influence of iodide of potassium in controlling syphilitic periostitis is highly deserving of your attention. We hear a great deal about specifics, and many medicines have the name with very slender claims to it; but if there is anything in addition to quinine which deserves the name of a specific, it is the iodide of potassium, for syphilitic periostitis. If you have a *pure* case it acts like a charm, so that the treatment materially aids the diagnosis; for we may fairly set it down as a fact, that if the symptoms yield completely and at once to the influence of iodide of potassium, the disease is essentially syphilitic.

But, although iodide of potassium unquestionably exerts a wonderful influence over these syphilitic periosteal affections, nothing is more certain than that its effect is far from being permanent. It is very common to meet with cases of periostitis which at first yield readily to the influence of iodide of potassium, and the patient continues well for a time, when all the old symptoms return. It was thus in Baglin's case: some time before his admission into the hospital he took iodide of potassium, and the symptoms yielded, but they afterwards returned. and were again removed under the influence of the same remedy. I think it not at all improbable that he may again have a return of the symptoms, and may once more come into our hands.

The knowledge of these clinical facts teaches us that we must not speedily abandon the use of the iodide or of iodine in some other form in cases of this description. In the present state of our knowledge we can scarcely determine whether the iodine acts by eliminating the syphilitic poison, or as an antidote. Possibly it may act in both ways; it may at once promote the action of emunctories, and so increase the amount of matters excreted from the blood; and it may unite with the syphilitic poison and form an innocuous compound, of which, however, the iodine element disappears more quickly than the syphilitic, leaving, after a time, the syphilitic in undisputed sway in the system.

In such cases we must trust to the repeated use of iodine as one element of cure, care being taken to watch the constitution of the patient during its administration. And we may aid the influence of the iodine by the occasional use of mercury, either at the same time with the mercury, or, as I prefer it, alternately,—that is, giving first a short course of mercury, then of iodine, then of mercury, and then omitting both, and using only tonic means, both medicinal and hygienic, resuming, if occasion should demand, the mercurial and iodine treatment.

But you must always bear in mind that *time* is an important element of cure in these cases; and, therefore, we must be careful to uphold the powers of our patient, not to weaken them by our treatment; for, by so doing, we should not only retard his favourable progress, but by weakening the vital powers of the patient, give a stronger hold to the poison. We have seen, in the history of Baglin's case, how a state of enfeebled nutrition from bad living clearly favoured the development of the serious symptoms: hence we must encourage our patients to expect a favourable issue; impress upon them the necessity of a steady perseverance in a general plan of treatment, and point out the dangers of swerving from the hygienic or dietetic rules laid down for them.—*Med. Gazette, January* 3, 1851, *p.* 1.

---

## 37.—CASE EXHIBITING CEREBRAL SYMPTOMS WITHOUT CEREBRAL LESION.

### By Dr. R. B. Todd, F.R.S.

[This case is highly illustrative of important points in pathology, and will well repay a careful attention to its interesting details. It occurred in a heavy lethargic patient, addicted to intemperate habits formerly, who for the last eight years had been a teetotaler. The consequence of his former habits, however, were beginning to manifest themselves even after this long period.]

Five years before his admission he began to have œdematous swelling of his legs, but this did not last long: it was probably owing to some temporary want of action of his skin. His next symptom, which commenced six or eight months before he was admitted, was frequent micturition at night: he was compelled to get out of bed six or seven times of a night. This was probably due partly to an irritable bladder, and partly to the quantity of urine secreted. He next became affected with head symptoms: he suffered from violent pain in the vertex, which continued ever after unabated. Soon after this his sight began to get dim, the little and ring fingers of his left hand became benumbed, and he felt very drowsy and unable to work.

The report goes on to describe him as "a heavy-looking man, thin and pallid; the complexion peculiarly sallow, as if the red particles of the blood were not only deficient, but as if the hæmatine were altered; frequently staring with a vacant gaze, answering questions very slowly, and appearing as if he felt it irksome to be made to reply otherwise than in monosyllables: moving his limbs about very slowly, and apparently with effort; pupils equal, contracting sluggishly."

Now, a patient coming to you with such a catalogue of symptoms as this, you would be tempted to set the case down as one of disease of the brain, in which the primary mischief is seated in that organ; and, if you made no further inquiry, you would immediately direct the whole force of your treatment to the head. Indeed, some years ago, this is what all practitioners would probably have done; for, in the state of knowledge then, they could not have known what else to do: but we now know that such symptoms as I have already detailed to you, referable as they certainly are to the organs within the head, ought, nevertheless, to direct our attention to other organs likewise—namely, to the kidneys, and more especially if, in addition, the patient has a pale sallow complexion, such as was very well marked in Jeffreys. Then, turning our attention in this direction, what information did we get in the present case? Why, we found that the quantity of urine was considerable, and that its specific gravity was very low; that it was acid, contained albumen, and that, on being allowed to stand, it threw down a scanty precipitate, which was found to consist of epithelium, of transparent casts of uriniferous tubes, and of one or two cells containing a considerable quantity of fat.

Here, then, we get a satisfactory explanation of the head symptoms—a true and sufficient cause for them: we find them to be *secondary*, resulting from previously existing and primary disease of the kidney. It was evident that the general nutrition of our patient was considerably impaired; and, as the result of this impairment of nutrition in general, there was of course an impairment of the nutrition of the brain in particular: and, moreover, although there was a considerable quantity of urine passed—for some days, indeed, the quantity of urine was so large, as much as nine pints, or even ten pints, as to have led us to test for the presence of sugar—still it is probable, from its low specific gravity, that the due quantity of urea, and other solids of the urine, was not eliminated; and thus the blood, and the various organs, were poisoned at the same time that they were imperfectly nourished. And this twofold aberration from the healthy standard—this actual poisoning, as well as imperfect nutrition of organs—this nourishment by not only a poor but a poisoned blood, which inevitably results from chronic renal disease—explains how a category of symptoms similar to those above detailed may arise from a particular state of the kidneys. I do not say that these symptoms may not occur in cases where there is no kidney disease, but I do say that, in a considerable number of cases in which they are present, kidney disease will also be found.

The circulation was feeble, the pulse small and weak; but the heart's impulse was strong, and was felt over a greater surface than was natural. There was, however, no correspondence between the heart's force and that of the pulse, nor was there evidence of any valvular disease. At no time was there much dropsy. It never exceeded a moderate anasarca of the legs and a slight puffiness in the face.

This man continued in the hospital for four months with scarcely any variation in his symptoms. He complained constantly of more or less headache, referred for the most part to the vertex, was always more or less lethargic, slept a great deal during the day, and always heavily at night, but was frequently woke up by frightful dreams. He was often sick, and vomited his meals. He had no paralytic symptom, except a numbness of the left side of his face, and a similar numbness of the little and ring fingers of the left hand. Up to the day of his death he continued to pass pale urine in considerable quantity and never exceeding 1012 in specific gravity, and always containing a very notable, although not a very large, quantity of albumen.

For some days we compared the quantity of urine which he passed with the quantity of his drink, and found that they maintained a pretty close relation,—sometimes the latter exceeding the former; at other times the reverse; but in either case the difference was never more than from half a pint to a pint.

You will remember—those of you, at least, who are accustomed to accompany me through the wards of the hospital—that I had no difficulty in saying that the disease was renal, and in indicating of what sort it was. I told you that the kidney was contracted, shrivelled up, from the atrophy and obliteration of numbers of the uriniferous tubes, altering the relations of the tubular and intertubular structures, creating congestion in patches and obliteration of some vessels, and interfering with the healthy formation of epithelium. This diagnosis rested upon the absence of more decided symptoms of brain disease than the pain, the lethargy, and the numbness of one or two parts, and upon the known sufficiency of renal disease to disturb the nervous system in the manner and to the extent to which that disturbance existed in our patient. It was likewise indicated by the peculiar complexion of the patient (no hæmorrhage having taken place from any other organ than, perhaps, the kidney), by the presence of albumen in the urine, by the dropsy, and by the large quantity of urine passed.

This last symptom, with the pretty uniform specific gravity of the urine, the small amount of albumen, and the moderate extent of the dropsy, led me to infer that the disease was *contraction* of the kidney, due to a chronic degeneration of that organ. In the large kidney, which owes its enlarged condition to the deposition of fat in the epithelium cells, and in that which is enlarged by the undue formation of epithelium to the distension of it within the tubes, the urine is deficient in quantity; it has a decidedly smoky hue, generally contains blood, and always albumen in large quantity, often as much as in the serum of the blood.

The diuresis which is often present in these cases, and which was so marked a feature of that which we are now considering, is explained by the condition to which the renal structures are reduced as the result of chronic disease. The tubes being stripped of epithelium and consisting solely of basement membrane, admit an abundant percolation of the watery part of the secretion throughout their whole length, which, if they possessed the healthy amount of their epithelial lining, would occur only at the Malpighian bodies. This great discharge of water was, however, a most fortunate thing for our patient, for it enabled him to get rid of a much larger amount of solid matter than he would otherwise have been able to do. Had this free excretion of water been checked at any time, serious symptoms would no doubt have instantly shown themselves in epilepsy or coma. By Mr. Beale's analysis it appeared that shortly after his admission the urine contained twenty-one parts of solid matters in a thousand, and these solid matters themselves consisted chiefly of *albumen* and *extractive matters,* whereas half that quantity at least ought to be urea. Nor would the increased flow of such urine as he was passing carry off a sufficient quantity of the organic and saline constituents to purify the blood. On the contrary, the large amount of solid matters excreted, about 1800 grains per diem, instead of about 1100, injured the blood as the nutrient fluid of the system, by depriving it of so much albumen. Still you can readily understand how even a slight check to the renal secretion would prove mischievous by diminishing still further the small amount of excretion of the proper organic matters of the urine.

The prognosis of a case like this is always unfavourable. If the secretion is copious the patient may linger on for some time, as happened in the present instance; but if the secretion is interfered with, the patient will presently die. And although in our patient the flow experienced no diminution, he died suddenly, although I cannot say unexpectedly, the manner in which he died differing somewhat from that of many other cases of the same disease. For some time previous his symptoms had been getting more aggravated; he had become more drowsy and lethargic, more doughy-looking and blanched, and the dropsy had gained on him, although not to any great extent. One night, without, however, having had any premonitory symptoms, he suddenly became comatose, breathed with stertor and puffing, his pulse became slow and languid, his respiration interrupted with increasing intervals, till it gradually and finally ceased. There were no convulsions. The time from the first accesss of the coma to his death was not more than a quarter of an hour.

The manner of death showed that it was owing to some change in the brain; and the short duration of the coma, and the speedy supervention of death, would go far to localize the lesion. Of this supposition the post-mortem examination was quite confirmatory: the following were the conditions that it revealed:—On opening the cranium the membranes were found quite healthy: on removing the brain a clot was found in the fourth ventricle, which proceeded from the left lobe of the cerebellum, having broken down the substance of that centre to enter the ventricle. The blood had passed through the iter into the third ventricle; having filled which it passed on either side, through the foramen of Monro, into the lateral ventricles, which it traversed, following the course of the choroid plexuses, and finally descending into the inferior cornua. The blood had coagulated into a firm, coherent clot, so that the whole could be taken out as a mould of the cavities and connecting passages. The choroid plexuses were lying on the inside of the clot apparently healthy. The anterior cornua were filled with serum. The hemispheres of the brain were healthy.

Now I think, in all cases where death supervenes very speedily on apoplexy, the clot will be found in a similar situation to this, involving, if not confined to, the mesocephale. Death is the more speedy the nearer it is to that important and central portion—that nucleus of the brain. Upon this subject I have so often had occasion to descant, that I need not dwell upon it now. I shall content myself with having drawn your attention to this point as a result always to be expected in apoplectic effusions.

I may also refer you to a symptom which occurred in this case, and which is, I think, a very fatal symptom,—namely, flapping of the cheeks in respiration. It is due to paralysis of both the buccinator muscles, and is the result of great compression of the brain, or of it near the centre of respiration, which is also the seat of implantation of the facial and fifth nerves upon which the action of these muscles depends.

The kidneys which I show you here were found in exactly the state which I described to you. Observe the surface, how shrunk, granulated, and fissured it is, and, on cutting it, how the organ is wasted, at the expense chiefly of the cortical substance. On a microscopical examination it was found that the tubes were stripped of their epithelium; in some parts the cells were filled with fat, but the great character of the epithelium was its scantiness and its imperfect organization. The thinness of the walls of the uriniferous tubes, as I have already explained, was favourable to the secretion of water, but not of organic matter, which is separated solely by the agency of the secreting epithelium; the former, holding albumen in solution, was therefore carried on with an energy proportional to its abundance, but the organic constituents of the urine would be secreted only in proportion to the quantity of epithelium existing in the kidney.

Coupling together the clinical history and the morbid anatomy of the case, there can be no doubt that the state of brain was dependent on the state of the kidney; and, had it not been for what we may call the *accident* of the apoplexy, the patient might have lived on for some time longer, might have had several epileptic fits, and have probably died in one of these, or from the exhaustion which follows such attacks.

Taking together the state of the kidney and the state of the cerebral function, nothing can be clearer than this class of cases, but, putting the state of the kidney out of question, nothing can be more obscure. There is no doubt that the kidney is the *primum movens:* the blood becomes poisoned; this poison interferes with perfect sanguification, a poor nutrient fluid is carried to the brain, which becomes, as a consequence, ill nourished; add to this the actual presence of urea, and other solids of the urine, in the brain, and we have quite sufficient to account for all we see.

In the treatment of this case there was really little to be done. It is not improbable that, by the frequent blistering of the neck and scalp, and other means of counter-irritation employed, such as the long issue in the scalp, we may have retarded the mischief within the cranium and prolonged life somewhat; but otherwise I do not see that we have any right to take much credit to ourselves for any benefit the patient may have derived. This is one of those maladies which, the more we know as to its intrinsic nature, the more we feel the impotence of our art to effect a cure. And so far, indeed, ignorance would have been bliss; in a certain sense, if it be not folly to be wise, our increased wisdom is attended, at least, with results less flattering and agreeable to our vanity. Still the knowledge of the disease—a correct diagnosis—no doubt saved the patient from many blind and hap-hazard trials of remedies, which might have diminished his strength without any promise of good.—*Med. Gazette, January* 17, 1851, *p.* 89.

38.— *On the Danger of incautiously moving Patients in Delirium.*—By Dr. R. B. Todd, F.R.S.—[In a clinical lecture alluding to this subject, Dr. Todd remarks:]

I have met with more than one instance of bad consequences following upon moving a patient in delirium, or just recovered from it, prematurely. About two years ago a man was admitted here for epileptic delirium. Finding that his delirium was very noisy, and disturbed the other patients, I had him moved into a separate ward, when he recovered from his delirium. He was moved up stairs, and shortly afterwards he became delirious again, and died comotose.

I am satisfied, from this and other cases, that there is nothing respecting which we need to be more cautious than as to moving patients either in or just recovered from delirium; even to move them from one room to another on the same floor is dangerous, still more moving to any distance, or to another floor.—*Med. Gazette, Jan.* 17, 1851, *p.* 93.

## 39.—ON THE PHYSIOLOGICAL PROPERTIES OF PICROTOXIN.

By Dr. R. M. Glover, F.R.S.E., Lecturer on Materia Medica in the Newcastle-on-Tyne School of Medicine, &c.

[Dr. Glover states that some years ago he was induced to make some experiments upon the active principles of many drugs, chiefly to ascertain how far the statements of other investigators agreed with his own conclusions from them. He states that many of these differed materially from some arrived at by others. On his examining picrotoxin, the active principle of the cocculus indicus, he found that it induced remarkable and peculiar backward movements shewn in a slight degree by convulsive twitches of the head, neck, and shoulders backward, and in an extreme degree by a regular forced retrogression. Premising a brief notice of the nature and chemical properties of the drug, he proceeds to relate his experiments.]

Picrotoxin is obtained by boiling the berries of *cocculus indicus* in a sufficient quantity of water. The decoction is then filtered, and acetate of lead added as long as a precipitate falls. The liquid is filtered and cautiously evaporated to the consistence of an extract. This is to be dissolved in alcohol; and the solution evaporated to dryness. The solutions in alcohol and water must be alternately repeated, until the dry residue is completely soluble both in alcohol and water. This is picrotoxin, with a little colouring matter. By agitation with a little water, the colouring matter, which is very soluble, is removed, and a number of crystals are separated, which are picrotoxin, nearly pure.

This substance crystallises in needles or silky filaments, in transparent plates, in radiating and mammiform masses, or in hard granular crystals. It is soluble in twenty-five times its weight in boiling water, and about 150 times its weight of water of the temperature of 57°. Alcohol, sp. grav. 0·810, dissolves one-third of its weight of it. Sulphuric ether, sp. grav. 0·7, dissolves two-fifths of its weight of it. Its alkaline nature is doubtful. It is very bitter. The formula is, $C_{12}$ $H_7$ $O_5$.

The picrotoxin with which I experimented was in beautiful white needles; and I could have no doubt of its purity, both from the sources from which it was obtained, and its possession of the chemical properties ascribed to the substance, and also from the physiological properties observed in its action on animals corresponding to those ascribed to the *cocculus indicus* and to picrotoxin.

The most full, and apparently exact, description which I can find of the toxicological action of the crude drug is contained in Orfila's 'Toxicologie Générale.'

Orfila says:—"In comparing the effects of picrotoxin with those of *cocculus indicus*, I have tried to determine the action of these substances."

"*Experiment* 1.—When robust dogs are made to swallow twelve or sixteen grammes of *cocculus indicus*, pulverised as much as possible, and the gullet is tied after the injection of the poisonous substance, we remark that these animals are not long in making efforts to vomit. At the end of twenty, twenty-five, or thirty minutes, their walk and attitude are tottering, their eyes prominent and haggard, their muscles are agitated with a trembling, which is at first slight, but is augmented by degrees; soon afterwards their features are affected by convulsive movements of various muscular parts of the face; contortions and horrible grimaces announce a general nervous attack; all at once they make some steps backwards, the fore-legs stiffen, they stop, and with difficulty avoid falling by reposing on the posterior limbs; the head ere long experiences a violent shock, like that caused in frogs by a strong electric discharge; sometimes these motions are sufficiently strong to cause this part to be reversed on the trunk, and to produce a somerset backwards, in which the head strikes the ground with violence, and the body rolls in all directions." He then describes the "temporary recovery of the animals, and their death under repeated attacks of the most terrible convulsions."

In the experiments with picrotoxin itself which he relates, the peculiar movements which I am about to describe do not seem to have been so distinct as in my experiments; and the idea does not appear to have occurred to him that the movements produced are exceedingly similar to those which occurred in the experiments of M. Flourens, where sections were made of various parts of the encephalon.

I shall now proceed to relate my experiments, premising that I do not describe every symptom observed, since such a description would swell this paper to an inconvenient bulk.

*Experiment* 1.—A mongrel dog was forced to swallow twenty grains of the poison. In a few minutes he seemed uneasy. In twenty minutes he vomited freely; salivation followed, and general tremors. In half an hour from the beginning the salivation was profuse. In about three quarters of an hour there were severe convulsions—opisthotonos. He then attempted to move backwards, but fell down with his fore-legs extended. In an hour the breathing became laborious; again another spasm of opisthotonos. The spasms diminished gradually in severity; but the saliva continued to flow. In an hour and twenty minutes he again vomited. In two hours he had partially recovered, and was able to go about, but was still salivated. During the night he made his escape.

*Experiment* 2.—A bull-dog had thirty grains of the poison inserted under the skin of the *axilla*. In ten minutes tremors came on. In a quarter of an hour he had a stool, and began to run backwards. He then stopped, and commenced to make peculiar movements with his fore-paws as if swimming, and to scratch the ground with his fore-feet. At the twentieth minute he vomited, and seemed to have little power over his limbs; in two minutes more he passed urine and fæces, and again began to scratch the ground. Frequent vomiting and salivation ensued, and he had bloody stools. At about the twenty-seventh minute there were tremors of the whole body, and backward movements of the head. He continued thus, frequently passing urine and bloody stools, and occasionally moaning. In an hour and twenty minutes he had a violent spasm of opisthotonos. He had also several of the backward movements. A bloody discharge was constantly flowing from the rectum, and saliva from the mouth. The breathing laborious, and heart's action frequent. The spasms of opisthotonos became absolutely dreadful. In their interval the animal staggered, and occasionally fell down, with dilated pupils and bloodshot eyes. He would sometimes batter the ground with his head, and grind and gnash his teeth, so that the sound could be heard for some distance. The mouth was filled with dust, and bloody. At about the second hour, the symptoms began to abate somewhat, and in the course of the day he got gradually better.

In three days he got comparatively well, but still had constant tremors, was stupid, and had little appetite. I now inserted two scruples under the skin of the groin. The symptoms were very similar to those which occurred in the first experiment. The retrograde movements were occasionally very distinct, and the animal, while lying on the ground, would sometimes work himself round in a circle. At the forty-fifth minute, he got up and rushed forward, a terrific object, the saliva and bloody foam flying in *sheets* from his mouth, and his eyes glaring. He suddenly stopped, ran right backwards, and was seized with a violent fit of tetanus, at the end of which he was dead.

On opening the body, the facts and appearances observed were as follows:—Almost total extinction of the muscular contractility; the heart was irritable—the auricles much more so than the ventricles. Both cavities of the heart were distended with black fluid blood; the lungs, although somewhat darker than natural, were crepitant and collapsed. The stomach and intestines showed considerable marks of irritation. The peristaltic movement went on. The brain and its membranes were greatly congested, especially the lower portion, the *cerebellum*, *corpora quadrigemina*, and upper portion of the spinal cord. There was much bloody serum in the ventricles of the brain.

*Experiment* 3.—I was desirous of testing the action of the poison on an animal peculiarly likely, I thought, to show the effects on locomotion. I selected a female ass. Sixty grains were put under the skin, but nothing was observed except tremors, some striking out of the limbs, and exhibition of general uneasiness. On this, after an interval of time, during which the animal had quite recovered—in fact, a delay of weeks occurred—120 grains were put into the mouth, and she was forced to swallow. An hour elapsed, and hardly anything was observed, except some slight tremors. From the little effect of the sixty grains before administered, I was afraid that the quantity was insufficient to affect materially so large an animal, and 100 grains were again introduced into the stomach. The dose had hardly been administered for a few minutes when the animal became salivated; she then began to strike the ground with her fore-feet. The breathing became laborious,—she suddenly ran backwards for at least twenty paces, fell on her side, and expired after a terrible fit of tetanus, which lasted about five minutes.

The *post-mortem* appearances were similar to those of the dog. The stomach was not examined. There was the same want of irritability of the voluntary muscles, but the heart contracted on being irritated. The congestion of the base of the brain could not be mistaken; and that of the vermiform process of the *cerebellum* was very remarkable.

[Ten grains of the poison were introduced in the same manner under the skin of a rabbit, and the same results were obtained. the backward movement being distinctly exhibited. The same quantity put under the axilla in a pigeon induced similar movements, with peculiar strange motions of the feathers which seemed agitated in all directions. The animal gradually fell on its side, and by movements of one wing contrived to turn itself round in a circle, as if rotating on a pivot, and this lasted for some minutes. The experiment repeated on a frog shewed a similar circular movement as in the last experiment, followed by the retrogressive actions. These experiments are related to shew the striking resemblance between the peculiar results obtained by M. Flourens on the section of some of the nervous centres, especially of the corpora quadrigemina and cerebellum.]

I quote the following from the report of Cuvier on the experiments of M. Flourens:—"After the effects of the removal of the brain, properly so-called, M. Flourens examines those of the extirpation of the *corpora quadrigemina*. The removal of one of the pair (bigeminal), after a convulsive movement, which soon ceases, produces, as a lasting result, blindness of the opposite eye, and an involuntary turning; that of the pair renders the blindness complete, and the turning more violent and more prolonged. Nevertheless, the animal preserves all its faculties, and the iris continues contractile. The complete extirpation of the tubercles *(corpora quadrigemina)* alone paralyses the iris. ... ... ... What then is most curious in the experiments of M. Flourens, is that part which relates to the functions of the *cerebellum*. During the removal of the first layers, there was only a little weakness and want of harmony in the motions. When it came to the middle layers, there was almost general agitation—the animal, still continuing to see and to hear, only executed quick and irregular motions. Its faculty of flying, walking, and keeping itself erect was lost by degrees. When the whole *cerebellum* was removed, this faculty of executing regular movements had entirely disappeared."

I have not space, nor is it necessary, to extract many of the experiments of M. Flourens; but the following bear so directly upon the subject, that I think it necessary to quote them:—"I gradually removed the *cerebellum* of a swallow: this bird was soon reduced to such a state, that it could only fly in the most singular and extraordinary manner; it went back instead of advancing; it rolled on flying; its flight had all the appearance of the most complete drunkenness. With this exception, this animal, like the others, preserved all its perceptive and intellectual faculties." He goes on: "I removed the *cerebellum* of a young and vigorous dog by successive slices. The animal lost more and more the faculty of moving with order and regularity; soon he only walked tottering and by zigzag; he went back when he wanted to advance; when he wanted to turn to the right he turned to the left. As he made great efforts to move, and was no longer able to moderate these efforts, he rushed forwards with impetuosity, and finished by falling or rolling on himself. If he found an object on his road, he could not, whatever design he might have, avoid it. He hit himself right and left. Nevertheless, he heard and saw very well; when irritated he sought to bite, and bit an object when he could meet it; but he could not dispose of his motions with such precision as to meet it often."

Those who witnessed my experiments will agree that this was almost exactly the character of the phenomena which picrotoxin produced.

The congestion at the base of the brain in the animals poisoned in my experiments was ascertained both by the eye and by examining the cerebral matter with the microscope.

I am aware that congestion is often vaguely described, and too much attributed to it; but I could hardly be mistaken in the appearances presented, as I have examined the brains of hundreds of animals after death from poisons. I do not, however, mean to infer that this excessive vascularity of the cerebellum was the *sole cause* of the phenomena.

I drew the following inferences from these experiments:—

1. Picrotoxin has the power of determining peculiar movements and effects, very similar to those described by M. Flourens, as resulting from section of the *corpora quadrigemina* and *cerebellum*. I do not think,

however, that the animals in my experiments were blind until just before death (if then), as in the cases where Flourens removed the *corpora quadrigemina*. The iris was certainly in some cases contractile until the symptoms became very severe.

2. Picrotoxin also acts powerfully on the spinal cord, and generally is a narcotico acid poison.

3. Although a most terrible poison, it is not so formidable in small quantities as conia, aconitina, and others of these active principles.

4. The animal temperature was much increased in some of those experiments, forming in this respect a great contrast with some facts I observed several years ago, showing the great diminution of temperature undergone by animals slowly poisoned by the chloride and bromide of olefiant gas, chloroform, bromoform, &c. How far the increase of temperature was owing to excitement of the nervous system I shall not pretend to decide.

It appears to me that these peculiar movements, which are certainly not voluntary, should also be distinguished from reflex movements. It is not easy to see how they tend to the conservation of the individual. As voluntary movements originate from the brain, and reflex motions from the spinal cord, these other movements appear to be connected principally with the cerebellum. My results strengthen so far those of Flourens, which latter can no longer now be ascribed to the mere mutilation of the animal.

Similar movements have been occasionally observed in disease, in animals wounded by shot, and in drunk people.—*Monthly Journal of Med. Science, April,* 1851, *p.* 305.

40.—*On Tartarized Antimony in Insanity.*—In the 'Annales Médico-Psychologiques' (July, 1850), the following abstract is given of Dr. Flemming's views, as contained in the 'Allgemeine Zeitschrift für Psychiatrie.' The author examines in this article the action of tartarized antimony in the treatment of mental diseases. This action varies as the medicine is administered in large or in fractional doses. In a large dose, it has been seen to cut short instantaneously a fit of insanity; and the patient, after a certain period of torpor, has almost lost the recollection of his excitement. But, to produce this effect, the medicine ought not to produce vomiting. When the emetic is given in fractional doses, it produces nausea, and exercises a kind of indirect sedative effect, in consequence of the modifications which result from it in the functional condition of the digestive organs The editors of the 'Annales Medico-Psychologiques' add to the observations of Dr. Flemming, that the administration of the drug requires certain precautions, which cannot be neglected without producing the most serious results. There are, say they, patients who appear to bear the tartarized antimony perfectly well, and there are some on whom the medicine appears to have no effect; the excitement continues, and there are neither stools nor vomiting; all of a sudden, the excitement is calmed, a colliquative diarrhœa is established, and there is exhibited as severe a degree of poisoning, as if there had been given at once the whole of the successive doses administered on several days. This fact ought to attract the attention of practitioners, because the same is the case with other medicines. This may be explained in two modes; either the medicine is accumulated in some degree in the stomach, where it does not act till it reaches a certain dose, or its action is latent, and the last dose is no longer tolerated like the preceding ones, by reason of the modifications which have supervened in the sensibility of the internal organs.—*Journal of Medicine, December,* 1850, *p.* 1181.

41.—*On Brucine in Lead-Palsy.*—As an internal remedy in lead-palsy, brucine possesses advantages over strychnine, as it is capable of being safely administered in larger doses. M. Bricheteau gives it at first in doses of two or three centigrammes (about one-third to half a grain) daily, and sometimes raises the quantity to eighty centigrammes; but this is rarely necessary. At the dose of from ten to fifteen centigrammes, it produces slight twitchings. with a creeping sensation in the limbs. When the dose is raised to twenty or twenty-five centigrammes, the twitchings become more powerful, and begin to be accompanied by stiffness of the limbs, which are put in a state of forced extension. When the patients are still, the convulsive movements are slight: but if they move in bed, the twitchings and tetanic symptoms appear. When they walk, their limbs become stiff, and they fall forward, if not supported. These symptoms are not accompanied by disturbance of the intellect, nor by headache.

In a case lately under the care of M. Bricheteau, of paralysis of the extensors of the thumbs and fingers, the good effects of this treatment were complete. The paralysis was complete; but, in a month, the patient was able to raise the thumbs, and ultimately made a perfect recovery.—*Bulletin de Thérap.*—*London Journal of Medicine, January,* 1851, *p.* 66.

## DISEASES OF THE ORGANS OF CIRCULATION,

### 42.—ON THE PULSE.

By Dr. R. B. Todd, F.R.S.

[In a clinical lecture on this subject, Dr. Todd says :]

The frequency of the pulse is affected by various morbid influences, of which the following are the most potent :—

1. *The condition of the blood.*—A poor blood is almost always associated with a very rapid pulse; in animals bled to death the pulse attains an increasing frequency as the blood flows; this occurs in men who have been very largely bled, and in cases of excessive hemorrhage, whether hæmoptysis, epistaxis, or hæmatemesis, or after surgical operations, the pulse attains great rapidity.

2. *The existence of a poison in the blood.*—This tends generally to increase the frequency of the pulse, and so you find the pulse quick in

the early periods of the exanthemata of typhus. The administration of alcohol to a healthy man affords a good illustration of this; as soon as he has taken a certain quantity of it, acceleration of the pulse takes place. But some poisons will produce a contrary effect, by depressing and weakening the heart's action as you well know in the administration of digitalis, or of hydrocyanic acid. So also, some of the animal poisons, if taken in large doses, will cause depression of the heart's action and a slow pulse. We have now a case of scarlet fever, in a man named Boon, in Rose Ward, with whom the pulse was as low as 60 before the eruption had come out fully; a state which seemed to me to indicate the use of stimulants, and under their administration the heart's action increased in force and frequency, and the patient did well.

3. *The state of the nervous system exercises a very remakable influence upon the rate of frequency of the pulse.*—It is one of the features of the hysterical diathesis, that the pulse, always quick, becomes accelerated under the slightest disturbance, physical or mental. Cerebral lesion sometimes causes a very depressed state of pulse; as, for example, inflammation of the brain, vomiting, pain in the head, and sluggishness of pulse, are symptoms which should always awaken the anxiety of the practitioner, as regards the state of the brain. In many instances of injury to the head, concussion, fracture with depression, the pulse becomes notably retarded until the compression of the brain has been removed. So also in many cases of apoplexy, the pulse is sluggish, and the heart seems oppressed.

*Of intermitting pulse.*—Among the most interesting modifications of pulse, which we meet with in practice, is that which arises from impairment of the rhythm of the pulse, or what is called the *intermitting pulse.*

The most common form of intermitting pulse is that in which the phenomenon of intermission results from the prolongation of the natural period of rest in the series of changes which constitute the heart's rhythm. The heart's rhythm consists of a regular succession of first sound, second sound, rest, —first sound, second sound, rest,—and so on. Now in an intermittent pulse this rest is unnaturally long, —the first sound of one beat succeeds the second of the previous beat, but after too long a pause. Sometimes the intermissions are very regular, occurring after every fourth or every third beat; sometimes perfectly irregular, at one time after every one or two beats, at another, every thirty or forty.

Now what are the indications of this form of intermittent pulse? Is it indicative of organic disease? I think I may state positively that an intermittent pulse of itself affords no indication of organic disease of the heart. The phenomenon of intermission is due to some disturbance of the local nervous influence, upon which, probably, the rhythmical character of the heart's action depends. Nor are we justified in pronouncing unfavourably of a patient because he has an intermittent pulse. You will meet with many persons who will tell you that they have had intermitting pulse nearly all their lives. Take a man in his ordinary health, and discharging his usual avocations,—for example, a medical student,—and suppose this intermittent pulse to be his only notable symptom, then you may set it down, without any hesitation, that there is no organic disease,—neither valvular lesion, nor any organic change in the healthy condition of the heart in any other respect.

But undoubtedly this form of intermitting pulse denotes a derangement of the heart's action of a sympathetic nature, and almost invariably in sympathy with the state of digestion. This kind of pulse is of very common occurrence in men who work hard, neglect exercise, are irregular as to meals, and sit up late at night. It is also very common, and doubtless from the same cause, in gouty men. Intermittent pulse is not uncommonly a precursor of a paroxysm of gout. Certain ingesta are very apt in some people to cause intermission of the pulse. Tea, for example, especially green tea, is one of these: ices, more particularly cream ices, will do the same. So, also, certain medicines,—as digitalis and colchicum.

Of all the causes of intermitting pulse in persons of middle age, or upwards, and in the middle or higher classes of society, I think you will find the gouty state the most common. The *materies morbi* of gout acts upon the nervous system of the heart much in the same way as the principle of green tea or of digitalis would do, and gives rise to the disturbance which deranges the heart's rhythm: hence, in the treatment of these cases, you must endeavour to purify the blood, by regulating the diet and by promoting the excretions, in such a manner as will not debilitate your patient.

I have stated that the intermittent pulse is not a necessary indication of organic disease of the heart. It is a curious fact, which is in some measure confirmatory of this remark, that of the various forms of disease to which the heart is subject, intermitting pulse is not of very frequent occurrence with any, nor is it constant to any particular form.

If there is one state of cardiac disease with which it is more frequently associated than with another, I should say it was disease of the mitral valve accompanied by weakness of the muscular fibre of the heart. But a large number of cases of mitral disease will occur without it to one with it; and, therefore, this occasional association gives it no value as an indication. The intermittent pulse depends upon some interference with the healthy nutrition of the muscular system of the heart; and hence you get it so frequently in bad states of the blood,—as in dyspepsia, gout, rheumatism.

You may gather, from what I have stated more than once in the preceding part of this lecture, that there is another form of intermitting pulse besides that to which I have alluded. The characteristic feature of this form is, that the intermission of the pulse does not result from intermission of the heart's *rhythm*, but from irregularity in the *strength* of the heart's systolic contractions. The heart may never intermit, and yet the pulse may; or, in other words, the intervals between the beats of the pulse may vary considerably in duration. This form of intermitting pulse sometimes occurs alone, sometimes simultaneously with that in which the heart's rhythm is deranged. When it occurs in the progress of an acute disease, as of fever, erysipelas, &c., it must be looked upon as a sign foreboding the worst results. I apprehend that it is this form of intermitting pulse which most commonly accompanies fatty disease of the heart; and, on the whole, in all states of disease, both acute and chronic, it is that form from which we may augur least favourably for the patient.

Posture influences these two forms of intermittent pulse differently. The first form, or that which depends on a prolongation of the natural period of rest in the heart's rhythm, is diminished by the erect posture, and the heart becomes more regular in its rhythm. On the other hand, the erect posture increases the number of intermissions in the second form by embarrassing the heart's action in the way which I have already described.

[In considering the means best adapted to keep down the frequency of the pulse, we may employ either direct means acting at once upon the heart, or indirect and general means.]

Of the direct means the administration of *digitalis*, or of *opium*, is the most important. You may give digitalis as a diuretic, or with a view to obtain its specific action in reducing the frequency of the heart's action. Given with this latter view it must be administered with due regard to a correct diagnosis, for while it is a very valuable remedy in one case it is a dangerous one in another. I would lay it down as a rule, that in all cases where there is regurgitative valvular disease, but especially aortic, digitalis given in doses which will depress the heart's action is a dangerous medicine; it weakens the heart, and thereby increases the embarrassment under which it already labours; it was for this reason I would not give digitalis in the case of Loveland. In his case, the stream of blood flowing into the auricle meets the blood regurgitating from the ventricle, and the blood flowing into the ventricle has to encounter an obstacle from blood regurgitating into it through the aortic orifice. It will not do to depress a heart labouring under such a derangement as this; therefore the only way in which you can quiet the heart's action in such a case as this is to employ some other medicine, which operates upon the heart through its tranquillising influence upon the nervous system, and so quiets the heart without weakening it. Now, opium is such a medicine, and therefore it is more generally applicable to heart affections than digitalis. The diuretic properties of digitalis may be often called into play in cases of cardiac disease; and for that purpose you may often combine it with a stimulant, as ammonia, or with some preparation of iron, so as to counteract the depressing effects. But the best combination, for a diuretic purpose, is with blue pill and squill, after a formula attributed to the late Dr. Baillie. I have seen, under the use of this combination, considerable dropsy disappear, and the heart become disembarrassed in its action in the most remarkable manner. And it would be impossible to say that the beneficial influence was due to one of the drugs more than to another: it is the combination of the three drugs which many times acts so advantageously.

But then there are certain other *indirect* means of acting on the heart, as purgatives, which diminish the quantity of the blood without impoverishing it; or steel, which improves the condition of the blood already poor; rest, the recumbent position, a nutritious and moderate diet, mental quiet. It is generally from the efficacy of some of these remedies, especially the three or four last, that heart cases often experience a marked alleviation of all their symptoms on their first entering the hospital.—*Med. Gazette, March* 7 *and* 21, 1851, *p.* 398 *and* 489.

## 43.—ON THE THEORY OF THE FORMATION OF VALVULAR DISEASES OF THE HEART.

By JOHN SIMON, Esq., F.R.S.

[Mr. Simon regards fibrin not as the nutritive material of the blood, but, with Zimmerman and other physiologists, as the result of the waste of the tissues, or the decay of the blood itself. We may ask, if this is so, Why is the quantity of chyle greatest in the thoracic duct, having appeared gradually during the progress of the chyle from the lacteals? No doubt many evils result from excess of fibrin in the blood, as fibrinous concretions in the spleen, liver, and kidneys. Mr. Simon even supposes the fibrinous vegetations, on the valves of the heart, so often found in acute rheumatism, and attributed to endocarditis, are owing to this cause; and he asks the important question,—How do those valve diseases originate? He answers it as follows:]

The general opinion, which till very lately has been unquestioned, is, that the lining membrane inflames, and pours out lymph (just as the pleura or pericardium might do), and that thus these vegetations are true *excrescences,* which have arisen in an inflammatory exudation.

Now here, on the threshold of the subject, a doubt occurs—Is the lining membrane of the arterial system susceptible of inflammation? "Inflammation," in the language of the schools, "consists in an increased action of the blood-vessels of a part." Without pledging ourselves for the accuracy of this definition, we may use it in the present instance as a rough criterion of inflammation; at least negatively. No part can be said to inflame, in the ordinary sense of the word, which has not vessels of its own. You cannot talk of inflammation of the hair or nails What, then, are the blood vessels of the lining membrane of the arterial system, which this theory supposes to be the seat of an increased action? That portion of an artery which we term its inner coat has no blood-vessels of its own, nor do those of the middle or contractile coat (which are derived from the so-called *vasa vasorum*) penetrate to a sufficient depth to influence materially (if at all) the nutrition of the lining membrane.

In the Museum of the College of Surgeons there is a preparation of Mr. Quekett's (an injection done, as all Mr. Quekett's are, with admirable success), which shows how very much, the *vasa vasorum* fall short of reaching the lining membrane of the artery. And—if you will but think for a moment, what should *vasa vasorum* do there? what could they convey more fit for the nutrition and growth of the membrane than what is already there?—than that blood, namely, which is already washing over it incessantly and profusely,

And again, gentlemen, reflect on this: the lining membrane of the artery and of the valves has an epithelium; wherever epithelium grows, the old cells drop off in a direction opposite to that whence the new ones derive their materials of growth. Just as our scales of epidermis drop from the surface of our bodies, being nourished and renewed from within; just so, if the epithelium of an artery were renewed from without (i. e. by *vasa vasorum*), the old scales, as fast as they became detached, would drop into the interior of the vessel; and though, no doubt, their decay is very slight, and the number that might thus pass into the circulation, and presently obstruct the capillaries, would be very small, still it would be essentially a clumsy arrangement.

From a variety of reasons, it seems almost certain that the ordinary nutrition of the lining membrane of the circulating system is derived directly from the blood with which it has contact; and that its morbid changes depend—not on any inflammatory condition due to the *vasa vasorum*, but on those humoral changes, those variations in the qualities of the blood, by which it is more immediately and more certainly affected than any tissue of the body.

On these grounds there would be great *primâ facie* difficulty in believing that the endocardial deposits could be of inflammatory origin. But this is not all; for if they were inflammatory exudations, why should they be so peculiarly limited to projecting or uneven surfaces of the lining membrane? And why should they evince so decided a preference for the *left* side of the heart? Both sides of the heart, and all points of each cavity, are (one would think) equally exposed to the causes of inflammation; the coronary arteries supply both ventricles of the heart indifferently, and we well know that acute *peri*-carditis pays no respect to the grooves and septum of the heart; it traverses all such lines of demarcation, injects the blood-vessels of right and left side alike, and covers ventricles and auricles equally with its dense inflammatory exudation. On the supposition that these vegetations are inflammatory effusions from the membrane, I should be quite unable to explain why they should almost entirely confine themselves, as they do, to the valvular apparatus; and why their predilection for the left side should be so great, that the right is very rarely affected—perhaps never, except where the left has first suffered, and where the disease has been of such extreme intensity, that even its weaker affinity for the right side has been able to manifest itself.

The opposite doctrine is the more tenable one. I believe that the origin of these vegetations is directly humoral; that they arise as fibrinous precipitations from an overcharged solution; the valves encrusting themselves with fibrin, just as a stick in certain streams coats itself with a calcareous envelope; and that the preference shown for the left side of the heart admits of explanation by reference to the peculiarities of its contents—the new-made arterial blood.

You will observe that this theory involves the supposition, that arterial blood is more prone than venous blood to precipitate its fibrin, either as containing more of it, or as containing it in some more separable form.

Not wishing to leave this a matter of uncertainty, I have experimented on the subject. I have carried a single thread, by means of a very fine needle, transversely through the artery and vein of a dog, leaving it there so that it might cut the stream; and I have done this repeatedly, sometimes in the femoral vessels, sometimes with the carotid and jugular, sometimes with the aorta and cava. I have suffered the thread to remain during a period of from twelve to twenty-four hours. My experiments have given me as a uniform result, that the arterial blood with the utmost readiness deposits its fibrin on the thread; the venous blood with the utmost reluctancy. And in most of my experiments, the thread, where it traversed the canal of the artery, presented a very considerable vegetation on its surface (exactly like those we are talking of on the valves of the heart); a vegetation sometimes as large as a grain of wheat; always of a pyramidal shape, with its apex downstream, and its base attached to the thread. In the artery, one might say that the thread whipped the blood, just as one whips blood in a basin to get the fibrin out of it; but with this trifling difference, that, instead of the rod beating the fluid, the fluid ran over the rod and precipitated its fibrin there. In the vein, the thread seemed to operate no way but obstructively; never coating itself with fibrin, but sometimes delaying or stopping the circulation with a voluminous black clot, chiefly collected on that side of the thread remotest from the heart. Accordingly, the general statement and rationale of the matter appears to be as follows:—the disease in which these deposits are so frequent is one of intense over-fibrination of the blood, and one in which almost certainly there are other conditions, besides *quantity*, making the fibrin easy of precipitation; the left side of the heart has preference, because it is the arterial side, and because arterial blood, as we have seen, readily parts with its fibrin; the valves, and particularly their streamward surfaces, are chosen for the deposit, because their position exposes them chiefly to the friction of the current; so that the whole curious selection of site for the deposit resolves itself into the concurrence of two conditions, which are fulfilled in that one spot of the vascular system—namely, the greatest chemical tendency to the deposition of fibrin, with the greatest mechanical facilities for its entanglement.

In introducing this subject, I mentioned that it is one of great practical importance. Many people bleed locally, or even generally, when they hear an endocardial murmur arising in the course of rheumatic fever. In their eyes, the new disease is endocarditis; and everything ending in *itis* is thought, in at least a majority of instances, to be benefited by bleeding. Therefore do not be in a hurry to call it endocarditis; and, as for bleeding, all that I would venture to say (for of course the treatment of this physician's disease does not fall within my province) is, to assure you of the pathological fact, that you may bleed a patient to death without altering (except probably to increase) the proportion of fibrin in his blood.

I may mention, however, as of some pathological interest, that in a recent work on diseases of the joints, by a French surgeon of considerable experience (M. Bonnet of Lyons), a section is devoted to the treatment of acute rheumatism by nitrate of potass in large doses (up to an ounce or an ounce and a half per diem). He speaks of its utility in the highest terms, and he quotes with full concurrence a passage from M. Gendrin, who has likewise used the medicine very extensively, to the remarkable effect that this method of treatment possesses this among other advantages, that it prevents inflammation of the endocardium,—*il prévient les endocardites.* You will find an interesting paper, on the same method of treatment, communicated by Dr. Basham to the Medico-Chirurgical Society, and published in the last volume of their 'Transactions.'

Now we know that nitrate of potash is a powerful solvent of fibrin; we know that in these large doses a quantity of it must be retained in the blood, and we are thus enabled to interpret the efficiency of the remedy in accordance with our knowledge of the disease. Nitre, if present in the blood in sufficient quantities, would prevent fibrinous concretions on the valves, by increasing the solubility of this material, and diminishing its liability to precipitation."—*London Journal of Medicine, April*, 1851, *p*. 341.

[We cannot subscribe to all these opinions of Mr. Simon, although they seem exceedingly plausible. The reader will find them very well answered by the Editor of the 'British and Foreign Medico-Chirurgical Review' in his April number, p. 472, many of the most important portions of which we give in the 7th article of our present volume.]

44.—*Cause of the Motion of the Blood.* By Dr. O'BRYAN BELLINGHAM.—[Speaking of congestion as an indirect or secondary symptom of cardiac disease, Dr. Bellingham remarks,]

The cause of the motion of the blood in the capillaries is now generally considered to lie in the impulse given to this fluid by the contraction of the ventricles. An experiment which was perform edby Dr. Sharpey seems to confirm this. "A syringe, with a hæmadynamometer, to show the amount of pressure used, was adapted to the aorta of a recently dead animal, the vena cava being divided; warm water was then injected, and, with a force which raised the mercury in the hæmadynamometer only three inches, the water passed through the capillaries, and out of the vena cava. When the pressure was increased so as to raise the mercury six inches, the flow was very free; and on adapting another hæmadynamometer to the vein, the pressure in this was found to rise as high as three inches. The pressure thus used in the arteries (six inches of mercury) was not greater than the natural pressure in the arteries of a living animal; and the pressure transmitted to the veins (three inches of mercury) was greater than that in the veins of a living animal,—thus showing that the force of the heart sustained by arterial tension is quite adequate to effect the circulation without other aid.—*Med. Gaz., Nov.* 22, 1850, *p*. 867.

45.—*On the Effect of Acetic and Hydrochloric Acids on Protein.*—MULDER says, in his 'Animal and Vegetable Chemistry,' (Part II., p. 307), "The combinations of sulpho-phospho protein (*fibrin* and *albumen*) and of sulpho-protein *casein*, with acids, alkalies, and salts, are especially remarkable. Protein is soluble in weak alkalies. Since therefore the serum of the blood is always slightly alkaline, being a proteate of soda, with sulphur and phosphorus, it keeps the sulpho-phosho protein in solution. This property is the cause of the blood remaining in a liquid state—a chief requisite for animal life.

If a weak alkaline solution of protein is neutralized by an acid the solubility of sulpho-phospho protein is greatly diminished. The sulphuric and phosphoric acids, by not dissolving protein, stanch bleeding. Acetic acid, by which protein is dissolved, does not, neither does the hydrochloric.

Protein, according to Mülder,—although it is doubted by Liebig,—is a complex substance, consisting of several heterogeneous organic compounds united into one whole, easily acted upon by strong reagents.

If a protein compound be brought into contact with an alkali, ammonia is immediately disengaged, and the alkaline solution can hardly be made weak enough to prevent the disengagement of ammonia. If either fibrin or coagulated albumen be dissolved in a weak potass ley, ammonia is always perceptible. Protein therefore is always in a state of decomposition, as serum is alkaline.—*Lancet, Feb.* 15, 1851, *p.* 174.

## DISEASES OF THE ORGANS OF RESPIRATION.

### 46.—ON THE TREATMENT OF PULMONARY CONSUMPTION.

By Dr. JOHN HUTCHINSON, Assistant Physician to the Hospital for Consumption and Diseases of the Chest.

[Dr. Hutchinson remarks that although fine air, warm clothing, nourishing diet, and regular hours, are absolute essentials in the treatment of pulmonary consumption, and that close confined situations, ill-ventilated chambers or localities, irregular hours and deficient nourishment, are the very worst conditions for such patients, yet that there is no greater mistake among mankind than the belief that an atmosphere warmed by a stove is, from its equable temperature, therefore proper for the respiration of consumptive patients. As the most striking symptom in consumption is the constant wasting away, so the most remarkable medicine of the day for increasing the weight is cod-liver oil. So great is Dr. Hutchinson's confidence in this drug, in its power of arresting consumption, that he states his belief that more benefit is derived from its use where it can be borne, than by the most careful consultations and the command of all the other medicines in the pharmacopœia. Of its power of increasing the weight, he says:]

Some very remarkable instances of great increase of weight have presented themselves,—thus, in one instance, 41 ℔s. were gained in 16 weeks; in another 19½ ℔s. were gained in 28 days, and 10 ℔s. in the succeeding 10 days; in another case, 29 ℔s. were added to the patient's weight in 31 days." "Amelioration of the symptoms did not invariably follow an increase of weight, though the exceptions were rare." "In other cases where the melioration was still more considerable and the progress of the disease appeared to have been stayed, relapse occurred, and was followed by a rapid progress to a fatal issue." "An aggravation of the symptoms and a diminution of the weight were almost invariable coincidences." "In a few cases the symptoms improved, though the weight remained stationary, or even became slightly diminished."

It is worthy of remark, that in many cases included in the 18 per cent. as arrested, they felt themselves as well as they had been before the attack of the disease, and few of these patients returned to the hospital again; therefore it is not unfair to presume that their "improvement was permanent." It is the opinion of the officers who drew up this report, in expressing their opinion upon the value of cod-liver oil, that it "possesses the property of controlling the symptoms of pulmonary consumption, if not of arresting the disease, to a greater extent than any other agent hitherto tried."

We have noticed that this medicine may be tried in any stage of the complaint, or rather we should say, in any stage of pulmonary disorganisation.

An opinion has been entertained, that the administration of cod-liver oil causes a recurrence of hæmoptysis; this impression does not gain ground in our opinion; but the question is not easy to answer, because hæmoptysis is of such frequent occurrence, particularly in the early stage of the disease. The oil certainly does not excite diarrhœa nor hectic fever; probably, by a continuance of it for many weeks, with inattention to the bowels, temporary hepatic derangement may manifest itself; but, unless these symptoms supervene, it may be tried at any time, even when there is a preternatural heat of the skin and quickened respiration. There is one case now under our care, a child about 11 years of age, who appears to be at the eleventh point of the last stage. She has for many weeks past taken *nothing* but cod-liver oil for her daily food, her bodily sustinence, and support. She is a perfect object of emaciation, of pulmonary disorganisation, and prostration of strength.

We commence the oil in small doses of ʒj three times a day, and seldom exceed ʒiv per dose; in fact, we do not think that the benefit to be expected is relative to the extent of the dose; we have seen a man gain 28 lbs. in weight on the small dose of ʒj three times a day. The stomach is apt to reject a large dose; indeed, common is the rule, that a uniform effect of a medicine is not commensurate with the extent of the dose; a speck of vaccine virus saves a man from small-pox.

In some few cases in our hospital it has been given to the extent of ℥iss for a dose. The oil used is of a straw colour, transparent, and free from all offensive smell; children take it easily. Darker coloured oils will have the same effect, but they are offensive, and patients consequently object to them. The oil is often taken in simple water, camphor water, or any aromatic water or bitter infusion, or in milk; when it cannot be taken in this way, it can often be tolerated as a mixture of ʒj of the liq. potassæ, or ʒij of the pulv. tragacanth. to ℥iss of the oil in ℥viss of peppermint or anise-water,—an ounce of either mixture being taken three times a day. Such will often remain in the stomach when the other forms cannot be taken. When none of these can be borne, benefit is sometimes derived from a mixture of ʒiss of spermaceti to ʒij of tragacanth and ℥vj of pimento-water, administered in the same dose. When the oil has been taken for some time, and a repugnance on the part of the patient suddenly arises against it, some simple "cough mixture" will "do wonders" in keeping things quiet for a time, when the oil can be again resumed. We have known the oil to be taken three times a day for nine months without any intermission.

There is one common question which we ask "How do you rest at night?" and as common almost is the answer "I cannot rest at all for coughing." We make it a rule to quiet the cough and to command sleep; for, if the patient cannot sleep, hectic symptoms may supervene, and little good without rest can ever be expected from the oil or any other medicine. Anodynes of some kind are consequently resorted to and often gr. iv. of the extract of hemlock. with gr. ss. of ipecac., and gr. $\frac{1}{8}$ of muriate of morphia at bed time; or, indeed, we prefer a pill of gr. one-sixth or gr. $\frac{1}{4}$ of muriate of morphia at bed time, increasing the dose as may be found needful. We try to give as little opium as possible, but the cough must be quieted, and sleep must be obtained.

The next important point is counter-irritation. We are convinced that it is a most valuable measure to keep up external irritation on the thoracic region. How often do we see in practice, that the closing up of some old discharging wound immediately excites phthisis,—the counter-irritation being removed, the latent phthisis manifests itself; and how rarely do we see (as Dr. Cotton noticed to us) skin disease associated with phthisis; indeed, we are glad to see a "rash break out" in a consumptive case. We sometimes produce counter-irritation with cantharides, but we prefer a solution of iodine, as ℥j of iodine and iodide of potass. to ℥ij of rectified spirit of wine, laying it on with a piece of sponge on the end of a stick; and this may be done in a few seconds of time. This immediately sets up an irritation in the skin. We use it freely upon either sex, first upon one and then upon the other side of the chest, even if one lung only is affected. Counter-irritation should only be employed when the system is quiet. We have now noticed four great points in the treatment—to increase the weight, to sooth the cough, to procure rest, and to set up counter-irritation: this is what we try to maintain; but, unfortunately, so many collateral symptoms lie as it were ready to present themselves, when we think things are going on quietly, that any regular course is always liable to be interrupted, so many and so complicated are the peculiarities; in truth, we may say no two cases are alike, so that every modification of treatment is at times required, and this, in a sketch like the present, we cannot consider. For instance, if hectic fever supervenes, neither cod-liver oil nor counter-irritation can be continued, and the case must now be met accordingly; again, when it commences we commonly suspend the oil, and always so when hæmoptysis appears.

When hæmoptysis occurs we suspend the use of the cod-liver oil, for the usual treatment with sulphuric acid, or acetate of lead, and the compound ipecacuanha pill, with cold and low diet, &c. We have heard *strongly* recommended dry cupping the thoracic region; but, of this, we have not yet had any experience, at least not more than such as to induce us to feel favourably inclined towards this treatment; the more so, as the trial cannot do any harm; also, oil of turpentine in small doses of ♏x three times a day.

Diarrhœa is another symptom, during which we generally suspend the use of the cod-liver oil for those soothing or astringent mixtures, commonly known as containing chalk, opium, and catechu, &c. This symptom is peculiar as to its duration; some patients always have a tendency to it, while others never have it; contrary to hæmoptysis, its liability to return increases with the advance of the disease; the coats of the arteries resisting ulceration in a remarkable degree, while the other tissues of the lungs are removed and cavities are being formed. When the diarrhœa continues long and is obstinate, the oil is commonly resumed again, upon that well-known principle of a medicine acting differently at different stages of a disease. When "night sweats" supervene, we certainly derive great benefit from the administration of gallic acid, gr. v., with the one-eighth of a grain of muriate of morphia, as a pill, at bed-time.

In a brief sketch like the present, upon the general treatment of pulmonary consumption, it will of course be recollected, that innumerable combinations of disturbing causes supervene, which arrest the general principles of treatment, which cannot here be mentioned, but which must be met, according to the general knowledge which all possess; but the chief points are to arrest the wasting, counter-irritation, and quieting the cough. No day passes in examining the mass of patients, but that the most interesting and inexplicable conditions present themselves, so that we experience constant checks to generalising; for false generalisation is commonly upset, as soon as formed, by twenty or thirty consecutive cases immediately appearing; for instance, the question as to the cod-liver oil producing diarrhœa, was uniformly answered by the negative in nearly forty consecutive patients of both sexes.—*Med. Times, January 4, 1851, p.* 5.

## 47. –CASE OF PNEUMO-THORAX, WITH TUBERCULAR CONSOLIDATION OF PART OF THE LUNG.

By Dr. R. B. Todd, F.R.S.

[The pneumo-thorax in this case arose from perforation of the lung. The patient, Thompson, æt. 39, a man of phthisical aspect, was admitted nearly a month before suffering principally from dyspnœa. About seven weeks before this he had an attack of hæmoptysis. The *quantity* of blood in hæmoptysis is of secondary importance as regards the diagnosis of phthisis: it may be a mere streak, an ounce, or a pint; the *fact* is very material, and the continuance of the hæmoptysis, or the frequent repetition of it, is of great importance. Dr. Todd continues:]

When we came to make a minute examination of him, we found that the principal symptoms were pain below the right scapula, occasional cough, and constant shortness of breath; and the physical signs were such as to denote disease of the base of the right lung. Percussion over all the inferior portion of the back of the right lung yielded a dull sound, and over all this region well-marked bronchophony and bronchial breathing were audible, except at the very base, where the bronchophony was supplanted by ægophony, and where there was a total absence of all breath sounds. On applying the hand over the region where the ægophony was heard, vocal vibration was found to be absent; over the region marked out by the bronchophony it was perceptible, but was less strong than on the left side.

Now I take it for granted that you all know the value and indications of these signs,—that bronchophony denotes that the lung intervening between your ear and some of the air-tubes of the lung possesses the power of conducting sound in an undue degree, from some form of increased solidity; that vocal fremitus indicates the contact of the lung with the thoracic parietes at the part where it is felt; and that ægophony denotes a stratum of fluid intervening between the ear and the lung, through which voice sounds have to pass, and by which they are modified. In the ordinary healthy condition the voice passes at once from the lungs through the parietes of the chest to the ear of the auscultator; but, where there is any fluid in the pleural cavity, the vocal vibrations have to pass through lung, fluid, and thoracic walls, before they reach the ear. If there is much fluid, the lung is so compressed that it ceases to be a conductor of the voice sounds; it is pressed up against the spine, and the vocal vibrations created in the larynx cannot be propagated by it to the walls of the chest: therefore ægophony indicates not only the presence of fluid, but shows that the amount of that fluid is small. When you have pleuritic effusion you must, to a certain extent, have compression, and therefore some consolidation of the surface of the lung: hence, whenever you have ægophony, you generally have a certain amount of bronchial breathing; but the bronchial breathing, if existing only in this proportion, merely results from the compression, and is not indicative of any deposit in the substance of the lung. In the present case, however, the bronchial breathing was so distinct, and existed so far above the space to which the ægophony was confined, that we diagnosed not only pleuritic effusion, but consolidation of the lung, either by hepatization or by tubercular deposit.

Well, the case went on with a morbid tardiness. The fluid became absorbed, and the physical signs underwent a corresponding modification: the bronchial breathing and bronchophony continued, but the ægophony almost disappeared. On the 22d, more than three weeks after his admission, I could hardly say whether there was ægophony or not: the bronchophony had an ægophonic character, but whether it deserved the name of ægophony I could hardly determine.

You may remember, in my observations on the case as I went round the wards, that I noticed the obstinacy with which the state of solidification resisted the action of medicines. I felt sure there was something that kept up this state. You know that, in ordinary cases of hepatization of the lung in persons otherwise healthy, the solidification resolves itself pretty quickly, often very much so,—I have known hepatization appear and disappear in twenty-four hours: but here, although we used nearly all the armature of physic,—although we mercurialized him, and iodized him, and treated him with all that range of remedies supposed to be efficacious in promoting the reabsorption of effused matters,—still it persisted; and you may remember I was very anxious to know the cause of this obstinate continuance. If there were no signs of tubercle elsewhere, the fact of its being the lower part of the lung that was solidified was against the supposition of phthisis. We examined the upper part of both lungs carefully on several occasions, but we could find no evidence of tubercle in either; still I entertained suspicions that the case was phthisical, and these suspicions were increased by the early history of the case: the hæmoptysis, the cough, the loss of appetite, the sweating at night, the dyspnœa,—all pointed to this; and finding it so obstinately resist remedies would of itself have excited strong suspicions in my mind, even in the absence of other evidence.

On the 24th, having left him at my previous visit much the same as he had been for many days, with a pulse of 110, and breathing pretty tranquilly, we find him suddenly seized with extreme dyspnœa, performing fifty respirations in a minute: great pain in the right side, which came on suddenly with the dyspnœa; an anxious expression, and blueness of the surface. On examining him to find out the cause of the sudden dyspnœa, I found that respiration was very imperfect on the right side, while it was puerile on the left; that, on percussion, while the upper part of the right lung was normally resonant, the lower part had ceased to be dull, but was instead remarkably tympanitic: and finally, when I came to examine more minutely, I found that the breathing in the upper part of the lung was vesicular, whilst in the lower part, in the region corresponding to the tympanitic percussion, the sounds of respiration were almost lost, what remained having a bronchial character; and that they were accompanied by that peculiar metallic sound, like blowing into an empty barrel, to which the name of *amphoric resonance* (bourdonnement) has been given. These were exactly the signs which I found on Sunday,—this was just the condition of the right side. Now, if all this had occurred on the left side, there might have been a source of fallacy from the presence of the stomach on that side: an empty stomach much distended with air would have produced analogous phenomena, as far as regards the percussion; but on the right side this source of fallacy does not exist; and the only thing that might cause an approach to these physical signs would be an enormously inflated transverse colon: but this would hardly produce an approach to what we find in the present instance, as far as regards the physical signs; the tympanitic percussion-sound would not extend so high in the chest, nor would it have been confined to the chest, and we should have found a great portion of the abdomen similarly affected.

The most probable explanation of the phenomena, then, will, I think, be derived from assuming that air had suddenly found its way into the cavity of the pleura. You are aware that air never exists naturally in the pleura, but that the two surfaces—the parietal or costal, and the visceral or pulmonary—are in immediate contact. The question then arises—how did the air get in? What could have caused this strange phenomena? It is very probable that air may be secreted by the pleura: there are high authorities who maintain the existence of such cases—cases in which air is found in the pleura with a manifest absence of any aperture, either external or internal, by which it could have obtained ingress: or air may have been generated in the pleural sac by the decomposition of fluids previously existing there.

Now without discussing the interesting pathological question—whether air may be developed in the pleura in either of the ways I have just mentioned—I must content myself with stating that either mode of the development or generation of air would not give rise to the *sudden* manifestation of the severe symptoms such as took place in our patient Thompson, on the 24th of November. The pain and oppressed breathing might have come on quickly, but not suddenly; nor would the physical signs have developed themselves so rapidly as in Thompson's case. We must, then, look for some other explanation for the sudden appearance of air in the pleural cavity: and I think we shall have no great difficulty in finding it. Now we know that perforation of the lung and pulmonary pleura is not an uncommon occurrence; we know when it does occur, and a communication is thus established between the pleural cavity and the air in the lungs, that a certain amount of air is drawn into the cavity of the pleura at each inspiration, more or less of which is retained there, the quantity augmenting by a regular increment at each inspiratory act, with a rapidity proportionate to the size of the orifice; that, as the quantity of air increases, the lung undergoes compression, and the chest dilatation; so that, in some instances, the lung may be at length rendered incapable of respiration, being pressed back against the spine, as we often find to be the case under fluid.

Now what have we in the present case consistent with such an explanation as this? We have previously-existing disease of the lung, sudden accession of dyspnœa, sudden tympanitic condition of the chest, diminution of respiratory sounds, loss of vocal fremitus, and, more conclusive than all, the addition of a peculiar characteristic sound, which sound is heard in the situation of the previously-existing disease.

The most probable conclusion that I can come to is, that either from pneumonia a superficial abscess has been formed, which has burst by the giving way of the pulmonary pleura, and so opened a communication between the lungs and the pleural cavity; or, what is much more probable, that the same condition had been brought about by the softening and breaking down of tubercular deposits, one or more, situated immediately beneath the pleural surface, having given way, and so produced the opening: this seems to me the most probable explanation of the case. You know that what we have to account for is the sudden accession of the dyspnœa and other symptoms, the tympanitic condition of the chest, and the amphoric blowing: for all these phenomena my hypothesis accounts, and for them no other that I know of would; and experience tells us that the majority of cases of pneumo-thorax are thus produced.

It is true that if a portion of lung were solidified, and a stratum of air interposed between it and the wall of the chest, the bronchial breathing would be rendered amphoric by the interposed stratum of air; and this intervention of air might arise from rupture or from secretion.

It may seem against the supposition, that the cause of the rupture is softened sub-pleural tubercle, that the amphoric blowing, and therefore the opening, is at the lower part of the chest; but, although this rather weakens the probability, it certainly does no more, since tubercles are occasionally met with exclusively in the lower part of the lungs; and it by no means counterbalances the other symptoms in the early history of the case, which seemed to indicate its phthisical nature.

Now if anything were to occur to plug up the opening, the amphoric blowing would cease, provided the lung were not solid. If it were solid, the bronchial breathing would put on the amphoric character. You will remember that in this case we had already, before the occurrence of pneumo-thorax, diagnosed solidification of the lowest lobe of the right lung.

Sometimes gangrene of the lungs will give rise to such a train of symptoms as have been above enumerated: an eschar will form, involving the pulmonary pleura, and thus forming a communication between the lung and the pleural cavity: but the great diagnostic sign of gangrene of the lungs —fœtor of the breath—is here absent: that supposition must, therefore, be negatived.

Now what will be the probable progress of this case? At present we have only one sign which may be called truly pathognomonic and characteristic—the amphoric blowing. Before the case terminates it is possible, and not improbable, that we shall have more, or at least one other. The particular sound to which I refer is the *metallic tinkling*—a name which it has received from its sharp ringing character: it is caused by the dropping of fluid from one part of the chest into another through the air contained in the cavity of the pleura. If the patient lies down, the surface of the lung becomes bathed in the fluid: if he then suddenly rises, the fluid gravitates to the bottom of the chest, and that portion, with which the surface of the lungs is wetted, falls in successive drops into the fluid below: by communicating sudden movements to the chest, a splashing sound may be produced, of an exactly analogous nature. Metallic tinkling cannot take place unless *air and liquid co-exist* in the chest; it depends upon the agitation or dropping of fluid in a cavity occupied by air: hence we do not get metallic tinkling in those cases of ordinary liquid effusion which follow pleurisy, because there is no air; and we do not get it in those cases of pneumo-thorax which sometimes, though rarely, occur, where there is no other effusion, because of the absence of the liquid.

There is one condition that may simulate this, and that may be, without great care, confounded with it,—a condition that may be evinced by identical physical signs, and in which we must resort sometimes to other than the physical signs for the diagnostic marks. Sometimes a large cavity is formed near the surface of the lung by the breaking down and and expectoration of tubercular matter, such a cavity will contain within it all the conditions necessary for the production of metallic tinkling and amphoric resonance,—namely, a large amount of air, a certain amount of liquid, and one or more openings through which air is ever passing into the cavity. The present case cannot be one of that kind, because the dyspnœa and amphoric breathing came on so suddenly;—because the area of the tympanitic percussion is too extended,—and because there has been no gurgling or cavernous breathing.

What we have to do in watching this case is to look out for the appearance of metallic tinkling, and for any change that may take place in the amphoric blowing—in other words, to look out for the formation of fluid by a pleuritic state consequent upon the introduction of air: or, on the other hand, we must look for the disappearance of these signs, and the removal of the air by absorption, the opening in the lung being closed either by a healing process or by being plugged up by tubercular or other matter. The long continuance of the signs of consolidation previous to the occurrence of the pneumo-thorax, and their persistence in spite of all modes of treatment, precludes the idea of the existence of simple pneumonia; and the previous history is so favourable to phthisis, that I fear we must let our prognosis rest upon that, and be prepared for the gradual sinking of our patient from the extension of tubercular disease—the softening of tubercles—the embarrassment of breathing—the hectic.

Whatever view we may take of the case, it is clear that but little is now to be done by the interference of art. To open the chest with the idea of giving egress to the air promises nothing, as the probability is that the air thus evacuated would be quickly replaced by other air less suited to the pleural cavity by its temperature and moisture, than that which had previously passed through a certain portion of the air-passages. If we were to tap in such a case, we should have two apertures into the pleural cavity instead of one, and should not be a step nearer the eradication of the cause of the malady. The course which I have pursued with this patient has been to keep his thorax firmly bandaged, in order in some degree to limit undue distension of the chest by the accumulation of air in the pleura; and I have also kept him under the influence of opium, with much the same view as I should adopt the same plan in a patient threatened with peritoneal inflammation after some operation opening the sac of the peritoneum, or after perforation of the intestine. He bears the opium well, and I think it exercises a favourable influence upon him. His respirations are less frequent, and the pulse does not exceed 110; and he is enabled to take a fair amount of nourishment. It is now six days since the sudden appearance of the symptoms of pneumo-thorax, and no evidence of the formation of fluid has appeared. —*Med. Gazette, Jan.* 31, 1851, *p.* 177.

---

## 48.—ON ASTHMA.

### By Dr. R. B. Todd, F.R.S.

*What is Asthma?*—I shall answer this question by stating first that it cannot be properly called a disease of the lungs—in other words, its primary seat is not in the lungs: it may be defined to be a constitutional disease, which manifests itself by paroxysms of difficult breathing, with intervals of various duration, in which the patient is completely or nearly in a healthy condition.

Let us look at the more prominent points in the clinical history of asthma, and inquire how far we may found upon them an explanation of its pathology.

The way in which the uncomplicated asthmatic attack commences is generally this. A patient, we will say, goes to bed quite well: soon afterwards he finds a difficulty of breathing come on; he cannot lie down; he cannot go to sleep; the dyspnœa increases, and the attack becomes confirmed: or, what is very often the case, he goes to sleep quite well;

and wakes in an hour or two with the attack on him. When once formed, the asthmatic paroxysm continues for some time, and passes off generally with some cough and expectoration, but sometimes without either. The time of its duration is very variable: sometimes it lasts only a few hours, sometimes many days.

When suffering from the attack the patient cannot lie down. All asthmatics show an instinctive repugnance to the horizontal posture while the attack is on, and even in the intervals of the attacks they like to lie high, and seldom lie quite flat: generally they are content with sitting up in bed or on a chair, or they may sometimes move about the room. The coachman of a neighbour of mine some years ago suffered so much from a paroxysm of asthma, which resisted all treatment, that he was obliged to stand leaning forward on a table for three days; and in this erect posture he passed the whole of this time: at last he became so exhausted that he was obliged to sit down from sheer inability to support himself. The erect or semi-erect posture is no doubt preferred because it enables the muscles of respiration to act with greater freedom, and with more mechanical power.

These attacks are very much influenced by weather, particularly cold and damp, and by locality, as high or low, humid or dry, relaxing or bracing: and there is a remarkable capriciousness in these respects, some persons liking a low, damp, smoky situation, some a high, dry, and clear; that which is fatal to one case will be the very best thing to another, and one person will be well where another cannot live. Sometimes persons living in London, and wishing to try the neighbourhood, will ask you, "shall I go to Clapham, or shall I go to Highgate —will a high or a low situation be the best for me?" Now this is a question that it is impossible to answer with certainty; for very often that which would seem the worst will turn out the best. I have known asthmatics better on the banks of the Thames than anywhere else; on the other hand, I have known some greatly relieved by going to a high situation. Dr. Watson has some interesting remarks on this subject in his valuable lecture on asthma, and relates some curious cases in illustration of the uncertain influence of locality in checking or promoting the asthmatic paroxysm.

Then, sometimes we find that asthma is brought on by certain specific irritating agents. We all know of *hay-asthma:* that if certain individuals venture within the range of a hay-field, they are seized with sneezing, coryza, profuse lacrymation, and other symptoms of irritation of the mucous membrane, accompanied with a distinct asthmatic paroxysm. Similar symptoms are brought on in other people (but such persons are much fewer) by the volatile effluvium of ipecacuan, or by the presence of very fine particles of dust floating in the atmosphere.

In asthma the respiratory efforts are greatly exaggerated, in consequence of the increase of the sensation of the want of breath—the *besoin de respirer* of the French; a sensation which any one may easily experience in his own person by simply putting his face into water for a few seconds. Under the influence of this strong feeling of the want of breath, large quantities of air are drawn in, and so great is the effort of inspiration that the noise which it occasions may be heard for a considerable distance. What results? The air-cells of the lungs become dilated, and the whole lung experiences a proportionate enlargement, and the external configuration of the chest is altered.

The state of lung which is produced by asthma is that which has been called by Laennec *emphysema*—a name not happily chosen, as it implies what really does not exist, namely, the infiltration of the lung with air, the existence of the air in its extravesicular tissue. If the asthmatic attacks continue for any great length of time, and are severe, we find further injury of the lung taking place; the walls of the air-cells suffer in their nutrition, and some of them, already dilated to their utmost extent, give way; three or four, or more, become fused into one, and form large irregular cavities, which are distributed among the healthy pulmonary tissue.

But, besides these changes in the lungs, the repetition of the asthmatic paroxysms leads with equal certainty to morbid changes in the *heart*. From the obstruction that is offered to the circulation through the lungs an undue amount of work is thrown on the right ventricle, which of course becomes more or less hypertrophied; at the same time the meshes of the pulmonary capillaries become enlarged, and no doubt experience some change in their vital properties whereby the circulation in them is retarded. This affords an additional means of obstruction through the lungs, and therefore an additional cause for hypertrophy of the right side of the heart. But as the backward pressure of the blood on the heart becomes increased, the right ventricle becomes not only hypertrophied, but dilated, and the dilatation extends in a retrograde course to the auricle, and thence to the large veins, so that in the advanced stages of this disesse it is not uncommon to find venous regurgitation, and more or less congestion. throughout the whole venous system. In the early stages, however, none of these conditions will exist. You may have the most exquisite asthmatic dyspnœa without its leaving any perceptible deviation from the healthy standard either in the heart or lungs, or at most no more than may perfectly recover itself when the paroxysm passes off. This is more likely to occur in children, because their tissues have a greater power of recovery from their greater activity of nutrition.

Such cases as these would alone be sufficient to prove that asthma is a disease essentially independent of any organic lesions of heart or lungs, though frequently accompanied by them, aggravated by them when they exist, and always *inducing* them if it is of sufficiently long continuance. And it is remarkable how soon these lesions may be thus induced, how short a continuance of asthma will be sufficient to give rise to evident signs of organic change in the heart and lungs.

[In this case, although the patient only had asthma three months, and for the greater part of the time not severely, yet he is already found with a barrel-shaped and unusally resonant chest, dilated thoracic parietes, and the heart so displaced and dilated in its right cavities as to beat in the region of the scrobiculus cordis. Dr. Todd continues:]

I look upon this last sign as one of the most characteristic symptoms of asthma, and I consider its presence in any case where I suspect asthma as a clear confirmation of the correctness of those suspicions. In accordance with this view, in examining a patient whom I suspect to be asthmatic, one of my first steps is to apply my finger to his scrobiculus cordis: if I find no beating of the heart there, my conclusion is a contingent negative; but if I find it beating there, and not in its natural position under the nipple, my conclusion is a certain affirmative.

If you trace up the disease to the point of its first appearance, you will generally find that the first attack came on either without any assignable cause, or after some indiscretion as to diet—or after some imprudent exposure to weather; the patient went to bed well, and in every respect in his usual health, and woke up asthmatic,—but once having made its appearance, it renders its victim ever after liable to its recurrence.

A remarkable circumstance is, that it is often inherited: the father or mother have had it, or it may have leapt over a generation,—the grandfather may have been asthmatic, and the intervening generation not so. Once that the asthma has fairly established itself in any individual, it may be brought on by any slight cause, even the most trivial disturbance will be sufficient to excite it,—catarrh, indigestion, irregular hours, mental excitement, violent exercise, change of temperature, change of place—any one of these may bring on an attack. Now, if you inquire narrowly, you will generally find at the root of the disease some fault in the primary assimilation: you will find that the patient has learned to avoid certain things; that he is not at liberty like other men; there are some things of which he dare not partake, or, if he does, it is done at the price of an attack. And you will likewise find, on looking into the patient's secretions, that they are altered, that the urine is lithic, phosphatic, (most frequently the former), or presents some deviation from the healthy standard. Very often too, you will find the attack ushered in by a peculiar condition of the urine, either such as I have just mentioned, or urine resembling nervous hysterical urine, abundant, clear, and pale, and of very low specific gravity.

Now all these points,—the periodical recurrence of the attacks, the perfect, or nearly perfect health in the interval, the absence of any organic change, the associated humoral disturbances,—all bear in the most interesting way on the pathology of this malady. They tend to establish a remarkable analogy between asthma, gout, and some other diseases. As in asthma, gout comes on quite suddenly—there is no warning: a man may go to bed quite or nearly well, and he will wake up early in the morning with a fit of the gout in his great toe. There is another disease, epilepsy, in which we have exactly the same phenomenon: a patient, with or without warning, falls down foaming, livid, and convulsed; the paroxysm goes off, and leaves him in his ordinary good health, and he may go on for years and not have another. Again, we know that a fit of the gout leaves no organic lesion if it occurs once or twice; but if it is often repeated, it leaves permanent injury in the joints that it attacks. We may observe the same with respect to epilepsy. If a patient has suffered only one or two attacks, you will find no change in his brain; but if he has had several, you will. The disease evidently consists essentially of something *attracted to* the brain, and not *existing* *in* it. The same, too, of asthma, the organic changes are all secondary, and a few attacks leave no traces behind them.

All this leads us to suppose that the paroxysm of asthma has something in common with the paroxysm of gout and the paroxysm of epilepsy. Of the two. I prefer to take the analogy to gout, because we have more definite and coherent ideas about gout, and we are more acquainted with its exact pathology. The theory at present most in favour with regard to gout is that it is a disease of assimilation, and this defective or vitiated assimilation gives rise to some materies morbis. When this matter is eliminated from the system, the attack passes off; when it accumulates, the attack comes on. In asthma defective assimilative power is a frequent coincident. Gout, too, and rheumatism, and all humoral diseases, resemble asthma in being inherited.

When the materies morbi of asthma has been generated, its effect is to irritate the nervous system, not generally, but certain parts of it, those parts being the nerves concerned in the function of respiration—viz., the pneumogastric, and the nerves that supply the expiratory muscles, either at their peripheral extremities, or at their central termination in the medulla oblongata and spinal cord; extreme difficulty of breathing is the result, and as a consequence of this, ultimate disease of the lungs.

Thus the occurrence of asthma in paroxysms would be accounted for much in the same way you would explain the occurrence of gout in paroxysms; and in the intervals between the attacks, the patient, being of asthmatic constitution, so to speak, is easily thrown into the paroxysm of asthma by causes which would but slightly influence other men—as cold, impure air, mechanical irritation of the respiratory passages,—just as gouty men may readily be thrown into the gouty paroxysm by causes comparatively trivial.

This seems to me to be the most reasonable exposition of the pathology of asthma.

Now we often hear physicians of great and deserved repute speaking of *spasmodic* asthma. I need not tell you that the bronchi possess a muscular coat, consisting of circular fibres of the unstriped, for it has been long proved, not only by microscopical observation, but by the most satisfactory experiments. It is in these circular muscular fibres of the bronchi that many pathologists localize the spasm, to which they ascribe all the phenomena of asthma.

The first link in the chain of effects of the immediate exciting cause of asthma would be, according to them, spasm of the bronchial tubes, then dyspnœa. Undoubtedly a state of spasm of the bronchial tubes would produce a great deal of dyspnœa; but what I want to point out to you is, that this state of spasm of the bronchial tubes ought rather to be regarded as one of the accompaniments, one of the phenomena of asthma, than as its cause. The feeling of breathlessness, or, in other words, a peculiar state of certain nerves and of a certain nervous centre, the centre of respiration, is the first link in the chain of asthmatic phenomena. The spasm of the bronchi follows sooner or later upon this, and often it follows so quickly upon it as to appear to come simultaneously with it: does it ever precede it? I doubt this.

Undoubtedly you may have severe asthma without severe spasm of the bronchial tubes. I remember a well-marked instance of this in a gentleman whom I attended for chronic disease, cancer, as I thought, of the liver. For nearly a week before his death he suffered from the most frightfully distressing asthma, which nothing could control, and which lasted without interruption till he died. I examined his chest repeatedly at all parts, and could hear nothing but the most perfect, loud, and puerile breathing, which is quite inconsistent with a state of spasm.

Again: section of the vagi nerves of animals produces phenomena exactly like those of asthma. Whatever be the cause of the dyspnœa in these cases, it is clear it cannot be bronchial spasm, as the muscles of the bronchi would be paralysed after section of their nerves.

There is one thing that I have observed, which has an important bearing on this subject; that in that particular form of spasmodic disease which I have no doubt in your future practice you will have many opportunities of witnessing, laryngismus stridulus, the crowing inspiration of children, there is a ronchus all over the chest, simultaneous with the convulsive attack. The moment the convulsion comes on, when the eyes become fixed, and the child begins to inspire with difficulty, if you put your ear to the chest you will hear a ronchus pervading the whole lung. The moment the recovery takes place, the ronchus ceases. And it is very interesting to notice that you may observe the very same thing in the ordinary convulsions of children, in which the larynx is not prominently engaged; and I suppose no one will pretend to locate these diseases anywhere but in the nervous system.

Hence the conclusion that I draw is this, that the spasm is the accompaniment, and not the cause of the difficult breathing that accompanies or follows upon the nervous changes, just as it does in laryngismus and in the ordinary convulsions of infants.

So much for the pathology of asthma: as to the treatment of this disease our attention must be directed,

1. To obtain relief to the paroxysms, and
2. To improve the patient's constitution in the intervals of the paroxysm.

First, in the asthmatic paroxysm you must enquire into the immediate exciting cause, and endeavour to remove it. With this view an emetic, by emptying the stomach, will often be found useful; or if the quality, not the quantity of the contents of the alimentary canal is the source of the evil, an alkali will be found beneficial. Stimulants are sometimes of essential service, especially when the long-continued circulation of imperfectly arterialised blood has deadened the sensibilities, and so far lowered the powers as to render the expectoration of mucus difficult: one of the best stimulants is sulphuric ether, or perhaps the chloric is even better, from its taste and smell being so agreeable. Ether, in combination with opium, will often be found of great service. But perhaps the *sedatives* constitute the class of remedies that has met most favour in the treatment of asthma, and especially the different members of the order Solanaceæ,—as hyoscyamus, belladonna, tobacco; but before and above all, both in the frequency of its employment and its real value, stramonium. This medicine may be given is various forms,—as an extract of the seeds, in doses of from gr. $\frac{1}{4}$ to gr. iij., or in the form of a tincture, in from ten minim to half-drachm doses; but more frequently it is smoked, and for this purpose the whole plant, leaves and stems, are used; it is dried and cut into small pieces, and smoked in a pipe, or the leaves alone are dried, and rolled up in the form of a cigar. I here show you some of these cigars, which have been put into my hands by Mr. Savory, of Bond Street; but I must tell you that these are not, strictly speaking, *stramonium* cigars, being made, not of the Datura Stramonium, but of the kindred species, the Datura Tatula, which is said to be even more efficacious than the more generally used species.

Lastly, we find a valuable remedy for the asthmatic paroxysm in chloroform: we know how in other cases it influences all those functions which are ministered to by nervous influence, and in its efficacy in asthma we have an interesting physiological experiment, and an important lesson with regard to the true pathology of the disease. But in the administration of chloroform I would give you this two-fold caution:—first, to give it gradually and cautiously, and not in a full dose; not to produce insensibility, especially if there be anything like blueness of the surface, because, though remedial to the asthma, it will tend to increase those very consequences which are most to be feared from the circulation of venous blood. Secondly, to impress upon your patient that he must never give it to himself, nor without the presence of a medical man. This case was related in the papers the other day:—A person who was in the habit of curing his attacks of asthma by inhaling chloroform, when administering it to himself one day, and when in a state of half subjection to its influence, to produce the full effect placed his handkerchief on the table, and buried his mouth in it; his insensibility became deeper and deeper, till at last he was too far gone to be able to raise his head. He therefore continued inspiring it, his coma became more and more profound, and a short time after he was found in that position quite dead.

Secondly, the treatment in the intervals between the paroxysms should be directed to improve the digestive powers of the patient and the tone of his nervous system; the diet should be very carefully regulated, both as to nature and quantity; and this is of all things the most important to occupy the attention of the medical attendant. The alimentary canal and the secretions generally should be kept in a healthy condition; exercise, the hours of rest, and in fact everything that bears on the general health, should be systematically and rigidly superintended; and I am sure that treatment of this sort will always be found of substantial advantage. Another thing having the same object is cold or tepid affusion, either by sponging or by shower-bath: but cold, while very serviceable to those who can bear it, is often too much for many people, in whom no reaction takes place, the coldness continues and drowsiness is produced. Such symptoms should always be looked upon as contra-indications to the use of cold affusion.

Now before I conclude, I will say a word on the relation of emphysema and asthma. Are these two diseases related to one another as cause and effect? and, if so, which is the cause, and which the consequence? To determine this let us see what emphysema is. It is a state in which the lungs are rendered more capacious, in which the relation of the ultimate elements of the lungs are in some measure deranged, and the pulmonary capillaries altered. Now, is this state of increased capacity a state capable of producing such a dyspnœa as we see in asthma? I cannot think that it is, although this increased capacity is attended with other conditions tending to diminish the efficient aeration of the blood, and, therefore, to the production of dyspnœa. But it will not explain the periodicity of the attack: emphysema is constant, asthma paroxysmal. On the other hand, asthma is clearly an efficient cause of emphysema; the asthmatic condition is just such as to produce those physical changes that constitute emphysema; and I think that all patients who have emphysema have had either asthma or bronchitis. It is confirmatory of this view, that emphysema comes on gradually, and that it bears proportion to the length of duration and severity of the asthma: if a person has had few attacks of asthma he has no emphysema, if he has had many, he has; the asthma precedes, the emphysema follows.

This then is the conclusion I come to,—that asthma is primarily humoral; that it is caused by a poison or a morbid matter acting on that portion of the nervous system which ministers to the function of respiration; that it leads to dilatation of the lungs and the walls of the chest, to emphysema, and ultimately to dilatation of the heart; that the habit may pass off, the morbid matter being no longer created, the patient ceasing to be asthmatic, just as a person ceases to be gouty or epileptic; and that, ceasing to be asthmatic the patient may remain, or may not remain emphysematous, according to the severity and duration of his previous attacks.—*Med. Gazette, December* 13, 1850, *p.* 999.

---

## 49.—ON DIPHTHERITIS.

[Mr. J. D. Brown, in a letter to the Editor of the 'Medical Times.' speaking of an epidemic of this disease which broke out in the autumn and winter of last year in Haverfordwest, out of two hundred cases of which forty proved fatal, remarks upon the insidious nature of the symptoms and the frequently fearful rapidity of its termination. He has repeatedly seen children, apparently in good health, suddenly seized with croupy breathing and laborious respiration, denoting its attack upon the larynx, and die within four hours from such sudden invasions. In many cases these alarming symptoms would seem to be relieved entirely, and the favourable state might continue for a few hours, and then another similar attack terminate the case at once. In other cases the changes proved slow, hesitating, and doubtful for hours and days. Mr. Brown proceeds to speak of the]

*Treatment.—General and Local.*—Local treatment is the sheet-anchor. The only one I found of use was a strong solution of nitrate of silver, never less than ʒi to ℥i, sometimes ʒij., applied liberally three times a day, or oftener in very severe cases, to the tonsils and affected parts, with a piece of sponge fastened to a quill. I tried the pure caustic, but it enabled me to touch a few parts only of the affected tissues at a time, and those often too severely; I used, in their turn, several local stimulants, but found none to answer so well as the solution of nitrate of silver.

Blisters and leeches were useless, often worse than useless; they exhausted and hastened death in every case. I found ext. belladonnæ and ung. hydrarg. fort., in equal proportions, of apparent use in relaxing the spasm of the laryngeal muscles, when laid thickly on the windpipe. It was only a palliative—never saved life.

*General Treatment.*—I depended on calomel, in combination with ipecacuanha, in doses varying from half a gr. each, every four or eight hours. In simple, uncomplicated attacks, I never lost a single case, nor ever allowed it to gain ground. If called before the windpipe was attacked, I never hesitated to say that a cure was certain, such confidence had I in my remedies, provided the system did not suffer from a primary attack on the stomach. I know of no disease of such magnitude more manageable.

I never lost a case, however severe, where I had established ptyalism. In three severe cases—a man of forty, a boy of twelve, and a girl of twelve—the croupy symptoms gave way, the false membranes, instead of maintaining their dangerous, blankety, continuous appearance, became patchy, and dissolved away like melting snow. The moment pytalism was established, and not till then, I gave wine, and decoct. senegæ, and ammonia, and iodide of potassium at the same time. Emetics I found of great use in the first stages; they always relieved the distress in breathing, and carried away large quantities of mucus; in the last stages they only exhausted, and often would not act at all. The inhalation of vinegar vapour, and the vapour of hyd. c. cretâ, I have thought useful in desperate cases. They seemed to prolong life in all cases, but never saved it.

I would in every case most unhesitatingly trust to the topical application of nitrate of silver in solution, and the internal administration of mercury, paying due attention to the powers of the system, supporting it with wine, quinine, and ammonia when required, taking great care not to debilitate nor exhaust by bleeding, warm baths, &c., &c.

I can venture to assert that the above treatment, if commenced at any period of the disease before the larynx becomes implicated, will succeed. The only cases I lost were those where the larynx and pharynx were simultaneously affected, the disease having commenced primarily in the stomach two or three days before, as evinced by vomiting, rigor, and general indisposition, and those where the laryngeal implication had shown itself before aid was sought. I had the benefit of a *post mortem* examination in two cases: the pharynx, tonsils, larynx, trachea, and bronchial tubes were more or less coated with false membrane, the larynx and trachea were thickly coated, the stomach showed symptoms of great irritation also.—*Med. Times, December* 28, 1850, *p.* 670.

---

50.—*On some Chemical Phenomena of Respiration.* By Mr. Horn.—Mr. Horn gives the following results of his examination of the gases expired from the lungs under different circumstances:—1. The longer the air is retained in the lungs the greater the proportion of carbonic acid it contains. Thus:—

| | Carbonic acid. | Oxygen. | Nitrogen. |
|---|---|---|---|
| Under ordinary circumstances . . . . | 3.8 | 16.3 | 79.19 |
| The breath held during ten seconds . | 5.4 | 14.5 | 81.1 |
| „ „ sixteen seconds . | 7.2 | 12.4 | 80.4 |

When the gases are expired under pressure—*e. g.*, through mercury—the proportion of carbonic acid is still larger. The following average variations have been observed by the author at different periods of the day:—

| | Carbonic acid. | Oxygen. | Nitrogen. |
|---|---|---|---|
| Morning . . . . . | 3.4 | 16.70 | 79.85 |
| Afternoon . . . . | 4.6 | 18.68 | 93.34 |
| Evening . . . . . | 3.6 | 16.42 | 79.92 |
| After midnight . . | 2.2 | 14.74 | 66.42 |

2. The expiration of carbonic acid is at its minimum at nine o'clock in the evening, and between three and four in the morning; the maximum points of the expiration of carbonic acid are from one to two o'clock in the afternoon, from six to eight in the evening, corresponding with the most frequent periods of exacerbation of disease.

3. The expiration of carbonic acid is augmented after taking food.

4. Infants and growing children expire more carbonic acid than aged persons; men more than women; and individuals of a sanguine and bilious more than those of a lymphatic temperament.

5. Moderate exercise, and the temperate use of spirituous beverages, increase the quantity of carbonic acid expired.

6. Drunkenness and narcotism produce the reverse effect.

7. Pain, sedentary occupations, menstruation, inflammation of the lungs, and fevers, induce a diminution of the quantity of carbonic acid expired.

8. Acute exanthemata augment the proportion.

9. Diarrhœa causes a decrease in the expiration of carbonic acid.—*Gazette Médicale*, 1850.—*Med. Gazette, February* 14, 1851, *p.* 285.

---

51.—*The Pulmometer.* By Samuel Hare, Esq.—[The following is a description of this ingenious instrument, which is, as its name implies, a "measurer of the capacity of the lungs."]

"It consists of a glass vessel, open at the bottom, and fitted at the upper part with a stopper, which can be inserted or removed at pleasure. This vessel is graduated from above downwards into cubic inches, from one to 350, and is accurately suspended in a circular tin vessel, being, at the same time, counterbalanced by means of weights attached to it with cords, which pass over pulleys in the transverse bar at the top of the apparatus. These weights move upwards and downwards, according as the glass vessel is depressed or elevated. If a person breathe through the mouth-piece the air will enter the glass vessel, and raise it in proportion to the quantity expired. The stopcock should then be at once closed, and the glass vessel being a little raised until the level of the water within it is the same as that without, the number of cubic inches of air contained in the vessel can at once be read off.

"The instrument attached to the pulmometer is for the purpose of ascertaining the *force* of the inspiratory and expiratory actions."

This instrument, in its objects and construction, bears a considerable resemblance to the *spirometer* of Dr. Hutchinson; which is well known to many members of the profession; but we are informed that it had been invented and in use several months before Dr. Hutchinson's apparatus was made public in 1844; and also that no communication had taken place between the relative inventors of the pulmometer and spirometer, in which case each instrument may be considered the result of an original idea in the mind of its proposer. Mr. Hare has found the pulmometer to be of considerable use in determining the rate of improvement in the health of his patients, whether labouring under disease of the lungs or spinal diseases, which latter naturally affect the capacity of the chest, and to the treatment of which diseases Mr. Hare has mainly directed his attention.—*Lancet, April* 5, 1851, *p.* 383.

## DISEASES OF THE ORGANS OF DIGESTION.

### 52.—ON THE TREATMENT OF OBSTRUCTION OF THE BOWELS.

By Dr. Edward Wells, Oxon., F.R.C.P.

[Let us suppose an instance of this kind. We are called to a patient who has had no proper evacuation from the bowels for the last seven or eight days, though he has taken repeated doses of powerful aperient medicines, none of which have operated effectually. On examination you find some degree of distension about the umbilicus, with a varying degree of tenderness on pressure. In severe cases you may find permanent sickness, mucus or bile being rejected from the stomach. The tenderness on pressure is not so great as we might expect. Flatus is felt to rumble in the intestines, and proceeds as it were downwards to a certain point, and then stops. With all this the tongue is moist and often clean; the pulse is not perhaps accelerated, generally weak; the urine, provided the obstruction is not high up in the bowels, is not necessarily affected, though generally high coloured.]

Under these circumstances, and especially in the milder cases, the first thing perhaps that you do is to order a large enema to be thrown up. It is found to traverse the large intestine easily; the patient assures you that he feels it go as far as the ilio cœcal valve, and after a short time it returns without any tinge of fæcal matter. The obstruction is not in any part of the colon, but somewhere in the small intestine.

What treatment should, then, be adopted? In the severer cases, where there there is pain upon pressure, distension of a portion of the intestine, a rumbling of flatus, and frequent vomiting, it will be said that the line of treatment is easily chalked out; that, whatever the cause of the obstruction, we have inflammation superadded; and that our treatment must be directed to subdue the latter. This is quite true, and in such well-marked cases I do not think there would be much chance of the case being misunderstood. But we must remember that these severe instances of the disease are only the consequence of a continuation and aggravation of the symptoms of its milder forms. We must not forget that the most simple case of obstruction is liable to run on into a fatal form, if, with the view of obtaining an action of the bowels, we are incautious in the prolonged use of irritating medicines. Finding that the patient's chief discomfort arises from the fact of the bowels not acting, that he professes himself as feeling otherwise well, we are, perhaps, rather too liable to fall in with his fancies, and just give him one more dose.

Now, in these cases what ought we to do? In the first place, abstain entirely from all purgative medicine. It will be much better to err in not giving sufficient aperients, than to err in giving too much. The first thing to do is to compose the patient's mind by informing him that there is no hurry for the bowels to act; that if he waits patiently, they will be sure to act in time; to tell him instances of persons who have gone a long time without any action of the bowels, and have done well.

Next, in these cases of obstinate obstruction I have great faith in the lancet, where it can with safety be used. It has seemed that a slight degree of faintness produced by blood-letting has acted very beneficially in removing the exciting causes of the obstruction, probably by the general relaxation which the faintness itself occasions. By putting the patient in an upright position, and bleeding him until he begins to feel slightly faint, I think we are quite safe not to do him any harm. If he is of a weak, nervous temperament, a very few ounces will produce the desired effect. If he be strong, he will afford to lose more. Where, however, the debility of the patient forbids the use of the lancet, it will be as well to apply leeches around the umbilicus. These act, probably, by relieving the local congestion, which is either the cause or the effect of the obstruction.

These measures premised, the safest plan is, I think, to put the patient upon repeated doses of calomel and opium. Even if inflammation be totally absent, the exhibition of these two drugs is likely to be attended with the best effects. The opium soothes the bowels already irritated by the repeated cathartics: it allays the over excited peristaltic action: it relaxes any contingent spasm, and quiets the patient's mind. To effect these objects it must be administered in sufficient doses—such as gr. ½ to gr. j. every four hours. The calomel, by improving the secretions, and exciting the action of the liver, tends to remove the cause of the obstruction. And if this happen to depend upon a partial enteritis, the combined action of these two medicines would hold out the best hopes of a successful treatment. If the calomel be sufficiently guarded by opium, there is not, I think, any fear of its producing any serious irritation of the bowels.

While using these remedies I should be in no hurry to accelerate the action of the bowels by aperients. I should rather wait until they begin to act of themselves, as they generally will; and then, provided no inflammatory symptoms were present, there would be no objection to administer a dose of castor-oil to aid their propulsive efforts. In these cases it is also better to delay the administration of aperient enemata until the bowels are acting of themselves. Previously to this they appear to add rather to the patient's discomfort, probably by the distension they occasion in the large intestine, which reacts upon the parts already distended by the obstruction.

When there is no tendency to sickness it is better to allow the patient to take food, in the shape of gruel, by the mouth. It prevents that sense of sinking which he often experiences, and it probably acts in some degree mechanically in propelling the contents of the intestinal tube.

In those severer cases, where there is frequent sickness, with pain in the bowels, and a rumbling of flatus, the above measures will be still further indicated. But there will also be other things which it will then be necessary to attend to. In these cases it is of great importance to abstain from giving any food by the mouth for some days. A teaspoonful of cold water should be put into the mouth from time to time to allay the patient's thirst. His support should be entirely entrusted to beef-tea injections. It is proved that these are sufficient to maintain the strength for some time—at any rate for a period sufficient to allay the irritating symptoms, which forbid the exhibition of food by the mouth. This part of the treatment I am inclined to consider as of the highest importance: for as long as food is continued to be administered by the mouth, and is rejected by vomiting, there will be little chance of arresting the inversion of the peristaltic action of the intestinal tube. The nutritive enemata should be of small bulk, not exceeding at the outside a quarter of a pint; otherwise they will not only not be retained, but they will add to the patient's sufferings. They should be administered at regular intervals of four hours. When there is much rumbling of the intestines, or when there is a difficulty as to the retention of the injections, it is advisable to add to them a certain proportion of laudanum.

I have confined my remarks on this occasion to the *treatment* of these cases of obstruction: I have said nothing of their *pathology*. I shall probably be told that the severer cases which I have described are nothing but cases of enteritis; and this is probably true to a certain extent. But what I have been most anxious to discuss is the treatment of the milder cases. Whether they also are not most frequently cases of partial and slight enteritis I will not take upon myself to say, but I feel convinced that the safest way of treating them is to suppose that they are such, and to treat them accordingly. It may be said that some of these cases arise from intussusceptio or internal herniæ. There is no doubt that this is sometimes the case, though, I suspect, less frequently than is generally supposed; but, if it were so, the treatment I have recommended would answer better than any other to this state of things also.—*Med. Gazette, Nov.* 22, 1850, *p.* 872.

## 53.—ON THE ABSORPTION OF ALIMENTARY SUBSTANCES, AND THE FUNCTIONS OF THE LACTEALS.

M. Bernard read a memoir of this subject, before the Academy of Sciences, at Paris, in which he proposed to determine, by direct experiment, the nature of the nutritive principles which are absorbed and conveyed by the chyliferous vessels, in order to ascertain if there really exist any alimentary substances which absolutely escape venous absorption, and consequently avoid passing through the liver before arriving at the lungs.

Alimentary substances submitted to digestion are, in the intestinal canal, finally reduced to three principal substances—the saccharine, the albuminous, and the fatty emulsive; on these M. Bernard has instituted experiments:—

1. *With regard to the absorption of Sugar by the lacteals.*—On injecting large quantities of sugar into the stomachs of different mammiferæ it has been found in the blood of the portal vein, while it was absent from the chyle of the thoracic duct at the same time and under the same circumstances; whence it is concluded that sugar, before arriving at the lungs, traverses the liver, where it undergoes a peculiar physiological modification. If a solution of grape sugar be injected into the superficial veins of a dog, it speedily passes off by the urine; on the contrary, if the solution of sugar be injected into the radicles of the portal vein, the sugar is no longer eliminated by the kidneys, but passes into the circulation, and is assimilated in the same manner as if taken into the digestive canal. Thus it is shown that the absorption of sugar by the portal system is a condition essential to its assimilation, since, if confined to the lacteals, the saccharine principle is abstracted from the influence of the liver, and is diverted directly into the general venous circulation, as takes place when it is injected by the jugular vein.

2d. *As to the absorption of Albumen by the lacteals.*—Albumen injected into the general venous circulation soon appeared in the urine. If injected into the portal vein it does not then appear in the urine, but is assimilated in the same manner as obtains with sugar.

3d. *Absorption of Fat.* —M. Bernard's previous researches have shown that fatty matters are not capable of admission into the lacteals, until an emulsion has been formed by the action of the pancreatic juice. Immediately that this emulsion has penetrated the lacteals, their aspect undergoes an entire change: instead of remaining transparent, like other lymphatics of other parts of the body, they assume a milk-white appearance, and owing to the transparency of the coats of these vessels, the course of the fatty matter may be followed from the intestine to the left subclavian vein, where it is diverted into the thoracic duct. It is not necessary that fatty matters should traverse the liver in order to their assimilation. M. Bernard has injected fatty emulsions into the jugular vein, but has not found that substance in the urine.

Thus the products of digestion may be distinguished, with reference to absorption, into two groups,—*e. g.*, 1st, fatty and albuminous matter absorbed by the lacteals, passing into the general circulation without having traversed the liver. The last proposition cannot be taken in so absolute a sense as the former, since experiment and microscopical examination demonstrate that fatty matters are absorbed both by the portal system and by the lacteals.—*Med. Gazette, January* 10, 1851, *p.* 79.

---

54.—*Successful Employment of Kousso in Tænia Solium.*—By William Wills, Esq., Totnes. [The following is another successful case of the use of this drug in tænia solium:]

Mr. N. S., a young farmer, living at Ipplepen, had been for seven years afflicted with the most annoying consequences, arising from this parasite. He had tried every variety of remedy, as well as every person he could think of, both regular and quack, during this period. I procured for him a dose of the kousso, and administered it on the 4th instant, according to the instructions given by M. Boggio. Four hours after, and about ten minutes subsequent to taking a seidlitz, to assist its operation, he expelled the animal, quite dead, and entire, he having suffered scarcely any inconvenience from the medicine.—*Lancet, December* 14, 1850, *p.* 651.

---

55.—*On the Preparations of Male Fern, as Remedies for Tape-Worm.*—M. Martin Solon, in a paper on the various remedies for tape-worm, in the 'Bulletin Général de Thérapeutique,' observes that, if the high price and scarcity of kousso sometimes render recourse to the male fern necessary, the powder of the rapidly dried fresh root should be used. Forty or fifty grammes (ʒ x to ʒ xiii) should be given during the morning, in divided doses, and a purgative of castor-oil should be administered directly after. The oil of male fern, if well prepared, and mixed in quantities of two grammes, with enough powder of fern, or mucilage, to make ten boluses, which are taken in the morning, at intervals of an hour between each, is usually efficacious; it kills the tænia, and oftens expels it immediately. The same effects result from the extract prepared from the tincture of the buds of the same plants, which is much used at Geneva, and which M. Debout says that he has used with success. He prescribes six grammes, to be taken in three doses, enveloped in unfermented bread, and given at intervals of an hour. It is sometimes necessary to follow the administration of these preparations by a dose of castor oil in the afternoon. In this respect, kousso has an advantage over the preparations of male fern.—*London Journal of Medicine, December,* 1850, *p.* 1182.

[Owing to the great expense of that valuable drug, kousso, it cannot help but be gratifying to observe Dr. Budd's anxiety to give this cheaper remedy a fair trial. Among the cases in which he has given the oil of the Male Fern are the following:]

James M., aged forty-two, was admitted into Rose ward, September 10, 1850, having, with the exception of a little breakfast on the 9th, fasted since the morning of the 8th, (two days.) He also took a dose of castor oil on the 9th, which opened the bowels freely. The patient first perceived joints of tape-worm with his motions two years ago last July; since that time he has passed them almost constantly, and twelve months ago he got rid of a large portion, twenty-four yards in length, by means of a dose of turpentine and castor oil; and from that time he has passed joints almost every day.

The patient was born at Stratford, in Essex; afterwards lived some time at Waltham Cross, in Hertford, but latterly in Red Lion Square, Holborn, from which place the worm has in all probability originated. The water is supplied by the New River Company.

The symptoms which he attributes to the presence of the entozoon are as follows:—Extreme and constant hunger: for the last year he has scarcely passed one night without being obliged to get up and eat something in the course of the night; a feeling of sickness in the morning, with a bad taste in the mouth, and a diminution of hunger at that part of the day. The bowels have frequently been very relaxed, and the patient has been much subject to headache. He has felt so drowsy in the day-time, that often he could have laid down and slept, even as he was walking in the street, and at times he has suffered from violent pain in the sides. The water has been high-coloured, and has deposited a lateritious sediment. The patient is of temperate habits, not having drank anything but water or tea for the last four years. He took the ethereal solution of the oil of the male fern at eleven o'clock A.M., the dose being one drachm and a half, mixed with eight ounces of water, and a little tragacanth mucilage to suspend it. This was taken all at one dose, and was followed by an ounce of castor oil at one o'clock. The worm was passed at four; it proved of great length, and the head was with it, attached to about three inches of the smaller segments. These fitted on to the rest of the worm, but were torn off from it. He went out the same evening to come back the first week in October.

We shall now adduce another case, taken from among Dr. Todd's patients.

*Expulsion of the Tape-Worm by the Male Fern.*—(Under the care of DR. TODD.)—E. C., aged 23, a servant, lives in Hatton Garden, and has resided in London all her life. She never enjoyed good health, and for some time past has menstruated once a fortnight, sometimes more frequently, the discharge being always profuse, and accompanied with intense pain. When about five years of age she was relieved of a tape-worm by medicine, but has passed joints up to the present time, and suffered much from giddiness, palpitation, indigestion, and a gnawing pain in the region of the stomach, generally unaffected but often relieved by eating. A fortnight ago her present illness commenced by fits of shivering, great lassitude, weakness and pain in the extremities, loss of appetite, and nausea. The patient was admitted into Lonsdale ward, very weak, and unable to sit up throughout the day. The shivering still continued; she complained of universal pain, more intense, however, over the hypochondriac and epigastric regions, where there was great tenderness on pressure. She still has the gnawing pain over the cardiac end of the stomach, and is much troubled with flatulence. The tongue is clean, but there is an unpleasant taste in the mouth.

The patient was given two ounces of castor oil immediately, and put upon low diet. On the third day after admission she took, early in the morning, and after having fasted on the preceding day, one drachm and a half of the ethereal solution of the male fern in one ounce of mucilage and eight ounces of water. A little time afterwards, two ounces of castor oil were administered to the patient. The medicine slightly purged her; no part of the worm was passed; but two days afterwards a round worm (*Ascaris lumbricoides)* was noticed. A second dose of the ethereal solution was then given, and the tænia solium was ejected: the head was, however, not expelled with the great length of the entozoon which was rejected. Dr. Todd prescribed, first, quinine, and subsequently chloric acid for the patient; she became much better in a few days, and was discharged. It is to be sincerely hoped that further trials will contribute in fully re-establishing the reputation of the male fern as a vermifuge in tænia solium.—*Lancet, December* 21, 1850, *p*. 676.

[The following case by Mr. Pollard, of Halifax, corroborates the practice of Dr. Budd as to the value of the male fern:]

My patient has been the subject of tape-worm for twenty-six years, and has taken everything that had been recommended to him, for its destruction, without any effect, (even turpentine, in doses of a teacupful.) Portions of the worm came from him when he was in bed, sitting, and walking. At last he began to lose his strength, his appetite failed him, he could not sleep, had constant pain in his head, with dimness of sight; pain in his bowels, which were very irregular, and altogether felt unequal to his exertions. I gave him the oil as directed by Hooper, and in about six hours afterwards he began parting with portions of the worm, in all about twenty feet. He is now rapidly recovering his health and strength. *Lancet, December* 7, 1850, *p*. 628.

56.—*Schmidt's Remedy for Tape-worm.*—By the process of SCHMIDT, the tape-worm is said to be expelled in from three to five days, without injury to the patient. A trial of it was made, under the authority of government, in the Berlin hospital, when the results were found to be so favourable, that the King of Prussia purchased the secret through a pension of several hundred dollars, bestowed upon the originator. The plan substantiates the purely empirical fact. that vermifuge medicines, when exhibited separately, are less efficacious than when combined in complex formulæ. The patient commences by taking, in the morning, the following mixture: ℞. Pulv. rad. valer. min., ʒ vi.; fol. senn. ʒ ij.; aq. ferv., ℥ vi.; infunde et cola. adde sal. glauber. crystall., ʒ iij.; syr. mannæ, ℥ ij.; elaeosacch. tanaceti. ʒ ij., M.S. Two tablespoonfuls every two hours, drinking freely at intervals of sweetened coffee. With this he perseveres till seven in the evening. At noon he takes a thin gruel; and in the afternoon one or two herrings, with the milt. At eight in the evening the patient has a herring salad, with minced raw ham, and oil, sweetened with sugar, plentifully added. Frequently portions of the tape-worm begin now to be discharged At six in the ensuing morning, he commences the following pills every hour:—℞. Assafœtidæ, extr. graminis āā, ʒiij.; gambog., pulv. rhei, jalap. āā, ʒij.; pulv. ipecac., digit. purp., sulph. antim. aurat. āā, ℈ss.; sub. muriat. hydr., ℈ij.; ol. tanacet., æther. anisi, āā, gt. xv. M. Divide into pills of two grains each, which are to be placed in a well-stoppered bottle; of these, six pills are to be administered every hour, with a teaspoonful of common syrup. Half-an-hour after the first dose, a tablespoonful of castor-oil is also given. Sweetened coffee is again to be taken freely at intervals during the day. At two in the afternoon, the worm is usually wholly expelled, when the pills are to be discontinued. Should only separate portions be voided, however, the remedies are persisted with, and a second dose of castor-oil becomes requisite. Meat soup is allowed at dinner, and in the evening. On the succeeding day, as an additional precaution, six pills are again exhibited at three different times—morning, noon, and evening. Such is the entire and complicated process, the alleged excellent effects of which are held to proceed more from the peculiar combination of well-known remedies, than from the employment of any new agent. Most adds, that this method of cure has been a hundred times successfully tested; and that it presents a warning, especially to young physicians, not to condemn too hastily the complex prescriptions of older practitioners, however much they may appear to offend against scholastic rules, or even the laws of affinity, inasmuch as there is often produced a *tertium quid* of real efficacy, which could not have been developed or found in more simple compositions. We leave it to British practitioners to judge, whether this commendation ought to be sufficient to induce them to give a trial to the singular process—ham and herrings included —*Monthly Journal of Med. Science, March*, 1851, *p.* 303.

---

57.—*Beneficial Effects of Creosote in the Treatment of Diarrhœa.* By W. B. Kesteven, Esq., Upper Holloway.—[Mr. Spinks, of Warrington, first mentioned this drug as a remedy in diarrhœa, in 1849. Mr. Kesteven states that he now very rarely employs any other remedy in that disease. He says,]

In most cases this alone has been given, and chalk mixtures, &c., &c., &c., have been entirely discarded. The form in which it has been administered to adults has been as follows:—

℞. Creosoti, ♏j. ad ♏v.; spir. ammon. arom. ♏xv. ad. ʒj.; aquæ ℥j. ad ℥iss.

where pain has been severe, tinct. camph. co. has been added. Mr. Spinks prescribed chloric ether; but the writer having had reason to think it produced headache, has omitted that article without detriment.

In no single case has creosote failed to be of signal benefit; in most cases one single dose has sufficed to arrest the course of the disease; in very few cases has it been requisite to administer more than the second dose. The remedy has been tried (to keep within the limits), it may be stated, in considerably more than a hundred instances, and its effects can therefore be confidently affirmed. It is not, of course, hereby asserted that equal success will always attend its use; the circumstances of local influences, epidemic constitution of the season, &c., may modify results in other hands. The present communication goes on farther to affirm that the writer, like Mr. Spinks, has found creosote more efficient than any other drug in stopping pain, vomiting, and purging, as combined in diarrhœa. Of its utility in cholera the writer has had no experience.

Creosote is well known to have a powerful effect in coagulating albumen and other animal principles; and it is probable that its astringent operation may be due to the exertion of some such influence on the lining membrane, as well as the mucous secretion, of the alimentary canal.—*Med. Gazette, Feb.* 7, 1851, *p.* 235.

58.—*Effects Produced upon the Stomach by Grief.* By Dr. Graves. [The following cases exemplify the effects of nervous agitation first upon the functions, and afterwards upon the textures, of certain organs.]

The first case was that of a young lady, residing in Camden-street, who was frightened at night by a sudden fire, which threatened to destroy the house in which she lived. During the moments of danger she got a pain in the stomach, which recurred frequently for several months, and finally was succeeded by symptoms of ulceration in that organ, from which, nevertheless, she unexpectedly recovered. Several years afterwards she died of another disease. The body was examined by Dr. Ireland and myself, when we discovered that a very large ulcer had existed in her stomach, which had afterwards healed, but which, in the first instance, was prevented from discharging the contents of the stomach into the abdominal cavity by adhesion with one of the neighbouring viscera, caused by effused lymph.

The second case was that of a young and healthy lady, over whose shoulder a musket was suddenly discharged in frolic by an inebriated man. She fell down in a fit of hysteria from the fright, became subject to violent palpitations of the heart, and died in the course of some years, labouring under the effects of general dropsy, produced by heart complaint. I examined her body, and found great enlargement of the heart, and various organic changes in the valves.

I have lately seen a case analogous to this, and which exemplifies, in a manner equally striking, the effects of the mind on the body. A grocer, of very healthy constitution and full habit, became suddenly involved in pecuniary difficulties, having, in consequence of railway speculations in 1847, lost a large sum of money, and not been able to meet his engagements. He experienced, from having been perfectly healthy, a total disappearance of appetite and a loss of sleep, which afflicted him for several weeks. His appetite he scarcely at all recovered: he became emaciated, and at times feverish. But after a few months he began to feel transient pains in his stomach, together with a sensation as if something was turning or moving in it. These pains latterly became more frequent, and the progress of the disease uninterrupted, exhibiting in its course all the symptoms of organic disease of the stomach. It is now two years since it commenced, and large tumours are to be felt in the neighbourhood around the pyloric orifice of the organ. The tumours are hard and scirrhous; he is emaciated to the last degree, and his case is evidently hopeless.—*Dublin Quarterly Journal, Feb.,* 1851, *p.* 8.

59.—*Chloroform in Lead-Colic.*—[The following are the conclusions at which **Dr. Aran** has arrived upon this subject:]

There can be no doubt as to the possibility of very soon curing lead-colic, by the internal and external use of chloroform. The advantages of this treatment are striking. Lead-colic is eminently a painful affection; chloroform removes the pain. The disease is probably dependent on intestinal spasm, which tends to produce the characteristic obstinate constipation; chloroform calms the spasms. It does not, indeed, cause the lead to be evacuated from the system; but, by the employment of sulphur and alkaline baths, the skin is freed from the metal; and the same effect is produced on the intestines by enemata. No inconvenience is likely to arise, when the evacuations are re-established slowly and with difficulty, from the use, for some days, of castor oil or some other mild purgative. Drastic purgatives frequently increase the colic, and even produce vomiting, when given before the pains are calmed and the evacuations re-established. Chloroform, applied principally externally, immediately calms the pains, and facilitates the use of purgatives, if it be found necessary to employ them.

The mode of external application, adopted by Dr. Aran, is to pour from one to two drachms of chloroform on a wet cloth, and keep it applied to the abdomen for a quarter or half-an-hour. He also gives it in mixture; and in enemata, preceded by a common injection. It is on the local application, however, that he seems to place most reliance. The enemata have sometimes appeared to increase the pain.—*London Journal of Medicine, January,* 1851, *p.* 67.

## DISEASES OF THE URINARY ORGANS.

### 60.—DIAGNOSTIC AND THERAPEUTIC REMARKS ON RENAL ELIMINATION.

By Dr. J. S. **Sutherland**, Leamington.

The eliminating power of the kidney being strictly of a purifying nature, and consequently of essential value to the due performance of the other organs, is, perhaps, the very first function impaired in disease, whether acute or chronic; and in virtue of this aptitude to take on diseased impression, it forms an index of disease, as certain as the mercurial column does of the atmosphere. A diagnostic scale may thus be formed. Thus inflammation and congestion of an active nature are accompanied by urates—uric acid, albumen. Passive congestions and neuroses are indicated by oxalates, phosphates, &c.; whilst cystive saccharine matter, purulent deposits, animalcules, and the various pigmentous secretions, lead to the supposition of special and deep seated, if not organic causes of mischief.

But it is not only necessary to detect these, the value of each must be specially estimated, both by itself, and also when met with in conjunction with another symptomatic product of the renal secretion. There may be a rapid change in function, indicating as rapid a change in the nature of the disease. Thus spasm may imitate an inflammation in almost every respect but that of the condition of the urine—the urine will be found pale and devoid of solids, but when the secretion either suddenly or gradually acquires density and acidity, let the practitioner be on his guard, for real inflammation is at hand—the nervous disorder has run into its antitype, inflammation.

The products of the kidney, both natural and morbid, are easily distinguished by chemical re-agents, and especially by the microscope; but to render this beautiful study subservient to the diagnosis of disease in remote organs, as well as in the renal glands themselves, it is of much importance to simplify; chemical processes require time. and a sufficiently powerful microscope is a bulky instrument. It is only, therefore, in the study they can be used advantageously, where nice manipulation can be had recourse to; and a frequent practice of it in the study leads to an analytical education of the eye, which will in a great majority of cases be sufficient to point out the necessity or otherwise of more minute analysis. The eye, with the assistance of a small pocket urinometer, can easily recognise,

First, colour indicating undue acidity, excess of urea, bile, pigments, &c.

Second, absence of colour, indicating deficient urea, deficient acidity, deficient consistency, &c., except in diabetes.

When the diagnostic value of colour is combined with that to be obtained from a knowledge of the specific gravity, we gain a further step: for instance, combine pale secretion with low specific gravity, the probability is that Bright's disease is indicated; combine pale secretion with high specific gravity, we have diabetes. Moreover, high specific gravity, combined with high colour, undoubtedly indicates animal power or inflammatory disease; but as high colour *may exist* with low specific gravity, and *vice versà*, although rare, it becomes necessary to use the urinometer constantly.

By generalizing, simplicity is aimed at. As an example of the difficulty of bedside analysis, suppose the practitioner is called to give an opinion, and finds diuresis a prominent feature. Moor's and Fronum's tests for sugar require solution of potass, sulphate of copper, test tubes, and a spirit lamp; these are difficult of application, even if present. The test by yeast, and that by polarized light, are quite impracticable; the microscopic test for spores requires heat of several hours' duration.

With a view to simplify this detection of sugar, and with the limited experience of four cases of diabetes occurring within the last four years, we have observed a very characteristic effect result from tincture of the muriate of iron employed as a re-agent on urine of a saccharine nature. To a test tube half filled with suspected urine add two drops of tincture, gently and carefully dropped, so as not to run down the side of the tube.

If sugar in any quantity is present, an opalescent albuminous looking troubling takes place to the depth of a quarter of an inch from the surface, which gradually becomes crimson.

The tincture of the muriate of iron produces no action on uric acid, urates, oxalates, phosphates, or albuminous urine; nor with that characterised by an excess of urea. Without asserting upon such a limited number of experiments, that this test is infallible, or possessed of any delicacy in detecting minute proportions of saccharine ingredients, it seems well adapted for general use.

There is one point intimately associated with the physiology of depuration, which has not been sufficiently dwelt upon by writers on this subject, viz., the almost total inefficiency of diuretic medicines in exciting depuration, for aqueous filtration is not depuration. Depuration, or the elimination of effete tissues in the form of salts, is the office of the tubuli uriniferi. Aqueous filtration is the office of the Malpighian bodies; the latter are comparatively easily excited to action: the former are a little under the influence of drugs. Water, therefore, may easily be separated from the blood, leaving the poisonous effete matter more concentrated, and consequently more poisonous; diuretics are therefore directly injurious. This is self-evident, and points to the cause of failure in the treatment of calculous disorders, when chemical antagonism forms the principle of action, namely, the total incompatibility of dynamic or vital chemistry with the science of the crucible and alembic. Before calculous disorders can be successfully treated by chemical re-agents, these re-agents must be used in such required proportions as to correspond exactly with the two great processes of reproduction and waste, called primary and secondary assimilation. In order that these may thus correspond, the atomic proportions, which rule with despotic power every chemical action and its results, must be adhered to, to an atom. A fraction of a grain of an acid or an alkali, or a still more subtle aura of a gaseous fluid, is enough to alter totally a chemical substance. Chemically speaking, the difference between sugar and oxalic acid and starch, is inappreciable to the senses, and almost as inappreciable by chemical analysis; yet the one is convertible into the other by the vital chemistry of digestion. Differing from each other only in an atom of chemical proportion, a very common-place disorder, or a very fatal disease, is elaborated.

With this proof of the delicacy of dynamic chemistry, is it not, at the least, of questionable propriety to give acids, and alkalies, and metals, in utter ignorance of the quantities required to produce a required chemical result? Nor must it be forgotten how various are the elements that enter into, or that forward or retard, a chemical action. Thus, d sproportion of elements of food, noxious ingredients therein, temperature, consistency, superabundance, difficiency, are all involved in the chemistry of assimilation; to these may be added the more subtle influences communicated by the senses, the stimuli to which, whether excessive or deficient, whether too intense or too prolonged, all bear a part in the process; receiving impressions derived from chemical, mechanical, electric, calorific, and psychological agencies, and further modified by anatomical confirmation, age, sex, and influence of the will.

This may, in a way, illustrate the protentiality of vital chemistry: but it fails to give any idea of its infinitesimal power. The alveolar glands of the cobra de capello secrete a fluid, which, to the great Leibig's analysis, betrays nothing beyond the chemical properties of gum-water; yet a drop of this gum-water, not more an entity to the eye than the tiniest dew-sphere on the petal of a rose, possesses wholly within itself a mysterious power, fearfully destructive to life. In what laboratory was that little globe formed? But the physician who expects to control the chemistry of digestion by acids, and alkalies, and metals, might just as well attempt to form such a sphere; they are both chemical actions of a vital nature, equally occult, mysterious, and unapproachable by human skill.

Another point in the diagnosis of disease, too little adverted to by practical men, is the elimination of urea; for the term depuration applies to all the solid ingredients of the renal secretion. An excess of urea is a rare disease, and may be considered a disease of colliquation. A deficiency of urea is a common disorder, and may be considered of importance according to its completeness and permanency. Deficiency is entirely characteristic of chronic disease, and being the substance into which the nitrogenous elements of food are converted, and afterwards eliminated, its retention most naturally occasions cause for alarm. In a large proportion of chronic diseases, urea is accumulated in the system, through impaired integrity of the eliminating organs, the kidneys, but there is much reason to suppose, that a compensating eliminatory process is set up in the skin and the lungs, and probably, also, in the bowels. That the skin throws off urea, may be proved by applying to the stomach a pad, wrung out of cold water, and occasionally renewed; in a few days a strong odour of urea will be exhaled from the surface covered by the pad; but this will only occur if urea exists in the blood in any seriously abnormal quantity.

If the skin, the lungs, and the bowels did not take up the vicarious duty of the kidney, hysteria, which is by no means a disease of a fatal nature, would be imminently dangerous to human life, for in that disease urea is most imperfectly eliminated; and this feature of hysteria leads to a further consideration, namely, the individual part borne by retained urea in developing other pathological conditions indirectly connected with hysteria. The most interesting of these, occasionally a precursor, but more frequently a sequela of the disease, is undoubtedly anæmia, and its prototype chlorosis.

"Bright's disease" of the kidney has generally been supposed to be characterized by albumen, or fatty globules; but it is much more so by deficient urea, for in reality, it is only in the early or inflammatory stage of the complaint that albumen is eliminated. In regard to urea, colour, and specific gravity, the renal secretion of hysteria and Bright's disease are exceedingly similar, for neither albumen nor fatty globules are essential in the latter disease. How then are they to be distinguished in the female? Not by the examination of the secretion during its ordinary state, but by the examination of it when casual acute disease has temporarily excited the vitality of the eliminating organs;

and which, if Bright's disease be present, will again present an albuminous condition of the urine.

The points of resemblance between the two diseases are threefold; viz., 1st. Deficient elimination of urea? 2d. Superabundance of urea in the blood; 3rd. A great tendency to diminish blood-making power.

Analogy of pathological condition in diseases usually considered distinct, may lead to deductions, if not of absolute practical value, at least, of some interest in a philosophical point of view; thus in both diseases above mentioned, the presence of urea in the blood is incompatible with the existence of the red blood corpuscle—the latter is gradually annihilated. Urea and iron are obnoxious to each other, the blood disc is chemically changed by the urea, and the well known endosmotic property of the enveloping membrane affords every facility for a chemical action. But when the antagonism and chemical re-action on each other of red blood and urea are referred to, the one a result of primary the other of secondary assimilation. the vital chemistry which presides over the process must not be confounded with the science of the laboratory; nor must it be expected that the red blood corpuscle when brought in contact with healthy urine, must become blanched as it is in a blood vessel, the fluids of which are contaminated by urea.

Is there any direct evidence that such a complicated action as the digestion of aliment is under the control of chemical re-agents? and is there any principle upon which the accomplished physician prescribes them? He certainly endeavours to avoid ingredients which he knows would, in a chemical sense, neutralize each other or produce new compounds. But beyond this all principle of chemical therapeutics is wanting. If acids, and alkalies, and metals are prescribed in clumsy doses, the physician must calculate that only so much of the substance is to be assimilated as may be required for a chemical action, and that any superabundance must be eliminated by the various emunctories; but in order that this theory may be supported, he must forget that nothing of a soluble or digestible nature passes off from the system, except as eliminated from the blood itself. If the metal iron be taken as an example of chemical therapeutics, it will be found that every practitioner has his favourite preparation of it. He generally choses the latest invention; he has run up the carbonates, muriates, sulphates, citrates, and has at length arrived at the proto-ioduret, which sounds well in a prescription, and is distinctly chemical in its nature. It is therefore necessary to investigate the action on digestion which this substance may be expected to exert. Can anybody say what part is enacted by the iron and what part by the iodine? Can he say whether a chemical action at all is formed within the body, or whether a compound of a most deleterious quality may not be formed, for we know that iodine is often retained in the system with much injury to it?

Again, it is no uncommon thing to prescribe acids upon the same principle, and even to combine them. Thus hydrochloric acid, for neutralizing various conditions of the urine, viz., alkaline, oxalic, and even lithic acids. But a higher degree of accomplishment in chemical therapeutics, lead the physician to prescribe the nitro-muriatic acid in such cases. Can he state the chemical action that takes place?

It must be evident to many, that chemical therapeutics have arrived at such a state of advancement as to savour of the mysterious if not of the visionary, and that the man who retraces his steps towards the ancient simplicity of Hippocrates may not be on the worst road of the two. Nor is evidence wanting that such a retrograde movement is in progress.—*The Institute, Jan.* 25, 1851, *p.* 57.

## 61.—EXPLANATORY OBSERVATIONS

### ON THE MORE SPEEDY COLLECTION AND ADJUSTMENT OF URINARY SEDIMENTS—SPONTANEOUS AND ARTIFICIAL,—FOR MICROSCOPICAL EXAMINATION, AND FOR THEIR MORE PROMPT AND IMMEDIATE DIAGNOSIS.

By Robert Venables, A.M., M.B., Oxon.

[Owing to the length of time frequently required for urinary sediments to subside, it is impossible for many, whose time is fully occupied professionally, in all respects to treat their cases under the perfect knowledge of the real and exact nature of the urinary deposit, when very possibly such knowledge may be of essential importance in the treatment of the case. Dr. Venables kindly pays his tribute to the general professional convenience by submitting his own plan to the notice of his medical brethren. He says:]

When a specimen of urine is to be examined, it must present to us one or other of the following conditions:—it either contains a deposit or it does not. If it present the latter condition, the circumstances require no special observations here. But, if it contain a deposit, this must either have subsided, or it will be found generally diffused through the urine, rendering the fluid what has been called *turbid.* We shall first consider the deposit as having subsided. In this case, the supernatant urine should be carefully poured off, so as to leave the deposit undisturbed at the bottom of the bottle, which should now be corked up and inverted, so as to let the sediment come in contact with the cork; the bottle is then to be re-erected and the cork withdrawn. Innumerable particles of the deposit, whatever its kind, will be found adhering to its end, which is to be applied, and gently pressed upon the flat or plane surface of one of the glass slides or supports. An abundance of the deposit will adhere, and should be covered with a slip of thin or French glass. The object is now ready for microscopic examination.

If the sediment be generally diffused by shaking during the carriage, or otherwise, by merely inverting the bottle for a few seconds, re-erecting, and then applying the cork as already explained, enough of any urinary sediment may be collected and transferred to the slide, and thus be prepared, in a few seconds, for microscopical examination. I have by this means repeatedly discovered and exhibited intermixtures of oxalate of lime and uric acid, oxalate of lime and urate of ammonia, and of the latter with crystals of uric acid, during the short space of an ordinary consulting visit; and this when the oxalate, in consequence of various intermixtures, had escaped the detection of considerable expertness and address in urinary examinations. By this process I can detect the nature and composition of almost any urinary sediment in less time than would suffice for taking the specific gravity by the urinometer. For instance: phosphate of lime with the double phosphate of magnesia and ammonia, forming the "fusible" or mixed phosphates, blood-discs in hæmaturia, the fat globules so frequently diffused through chylous and other varieties of morbid urine. In fact, whatever the nature or variety of intermixture, sufficient of each and every principle will be found attached to the cork, so as to enable us to recognise them.

That all the matters composing a deposit, and diffused through the urine, may be detected and recognised by an expert and practised explorator, admits of no question or dispute; but it is the facility and expedition with which the exploration may be made, that in my mind gives the process just described its value, and which have induced me to submit it for the benefit of those to whom time and promptness are objects of some consideration.

Although a little practice would enable any one—even the least conversant with urinary manipulations—to remedy or provide against some little difficulties occasionally experienced, still, perhaps, it will be as well to notice such as are sometimes met with, and the means which I myself adopt for overcoming them. The objection to the pipette for the transfer of a drop for microscopical examination is, that the drop almost always contains too much fluid, so that there is a considerable depth between the upper surface of the fluid and the surface of the glass support upon which it rests. This is often quite sufficient to float the slip of French glass, and on pressing it down, such strong currents are caused in all directions in the fluid, that any very minute light crystals, as octohedres of oxalate of lime, or indeed tolerably heavy crystals are carried away from under the slip of thin glass, and of course out of the sphere of vision. This is so powerful a cause of disappointment, that I have found crystals of oxalate of lime, intermixed with uric acid in urine, the former of which had escaped the observation, or rather detection, of very able and expert explorators; so much, that, upon a very recent occasion, a medical gentleman, whose patient called upon me, would not believe but that I had deceived myself; and it was not until he saw the process that he became convinced.

A difficulty of this sort can never occur with the cork, because it rarely, if ever happens, that more fluid adheres than is barely sufficient to produce distinctness of outline and clearness of vision in the object. It may happen, from unusual viscidity, that a greater quantity of fluid may adhere to the cork; but this is easily remedied by gently and slowly inclining, and allowing the bleb or drop to collect at the most dependent part of the edge of the cork, and touch it with a thread, camel-hair pencil, or even the lip of the bottle. The crystals may then be transferred to the slide, and they will be found resting on the surface of the support; nor is there any danger of their being swept by any currents out of the area of observation, as there will not be fluid enough to float them, or currents strong enough to carry them away.

In certain cases, when the sediment has subsided and collected at the bottom of the vessel, it may be intermixed with various matters—products of decomposition, or the crystals and other minute objects may be so numerous and crowded together, that their forms and appearances will be obscured, possibly completely concealed, and so escape detection. This frequently occurs with the urates, phosphate of lime, but more remarkably with the oxalate of this earth. This inconvenience may be remedied by transferring a portion of the sediment to a test tube, adding a sufficiency of clear or distilled water, and shaking up the whole, so as to diffuse through the fluid in mechanical suspension. If the tube be then corked and inverted for a few seconds, on re-erecting, a sufficiency of the deposit will be found attached to the cork, and may be transferred to the slide in the manner already explained. If the sediments so collected be now examined in the microscope, they will be seen perfectly clear, distinct, and sufficiently apart, to exhibit their forms, outlines, optical and other distinguishing properties. We shall thus be enabled to recognise the crystalline appearances of the uric acid,—double phosphate, commonly called "triple," and oxalate of lime; and also the amorphous characters of those uncrystallised compounds—phosphate of lime, the urates of ammonia, and of the other alkalies and earths. These and the various intermixtures which occur in urine in which they have remained long, and being rendered indistinct by the changes which spontaneously occur under such circumstances, are rendered perfectly evident by this mode. This expedition and saving of time must prove a great advantage in the examination of urine—such as it is constantly falling to my lot to make—sent up from the country from long distances, and probably kept till spontaneous decomposition has rendered microscopical examination by the ordinary methods, not only difficult, but extremely obscure.

I have also lately had one or two applications requesting information as to the easiest and quickest method of distinguishing phosphate of lime; the opaqueness and amorphous forms of which present no optical or microscopical characteristics sufficiently distinctive. In the 'Elements of Urinary Analysis,' various chemical and other methods are pointed out; but that which I am about to detail will be not only quick, but easy of performance.

Phosphate of lime may be readily confounded with mucus, or with pus, with which, in large quantity, it is often intermixed, and this greatly increases the difficulty. It was upon one occasion or two of this sort, in which I was obliged to correct the mistake of taking phosphate of lime for a purulent deposit, and upon another for urate of ammonia, that I determined to notice the subject in this place.

In many instances, I have found the phosphate of lime forming exclusively the whole of the deposit, with perhaps the exception of a mucous or pus globule or two; and this has occurred to me so frequently, that I have felt greatly at a loss to understand the assertion by Dr. Prout, of the extreme rarity of such a deposit as in idiopathic affection. I meet with it tolerably frequently, and, in a fair proportion of instances coming under my own observation, the characters and phenomena were as much idiopathic as those of any other of the diatheses.

But, however rare the pure phosphate of lime, the intermixture with the double or prismatic phosphate is by no means very uncommon. The prisms of the double phosphate are not difficult of detection; for their form and crystalline appearance cannot be easily mistaken; but the amorphous intermixture of phosphate of lime is not so easily recognised; nor is the difficulty at all diminished by the mucous or muco-purulent exudation with which such forms of deposit are usually intermixed.

To detect the phosphate of lime, a portion of the urine turbid with its sediments should be set aside; and when the deposit has subsided, the supernatant urine is to be poured off and a portion of the deposit transferred to a test-tube, and well washed by repeated washing with distilled water, till freed from all traces of adhering urine. A small portion of the washed sediment is to be next dissolved in a few drops of acetic acid diluted with distilled water. Whether the sediment consist wholly of the phosphate of lime, or of the mixed phosphates, a perfectly clear and colourless solution will be the result, unless there be mucus or pus, or both intermixed. In this case, or if there be opalescence, or any want of clearness or transparency, the solution should be run through the filter, through which it will pass rapidly, perfectly colourless and transparent. The acetic solution is next to be treated with a weak solution of oxalic acid, when it will in a very short time, if any salt of lime were present, assume a degree of turbidness proportionate to the quantity of lime present. After adding the solution of oxalic acid, the tube should be corked up and inverted, so as to allow the oxalate as it forms to subside and attach itself to the cork. After a few seconds, if the tube be erected and the cork withdrawn and applied to one of the glass supports, the microscope will show numerous octohedrons of oxalate of lime; thus proving that a salt of lime formed part of the deposits, and must have been the phosphate, as, had it been the carbonate, the solvent action of the acetic acid would have been attended with *effervescence.*

Oxalic acid I consider preferable as the precipitant to oxalate of ammonia, because, although not so very immediate as the oxalate of ammonia, the resulting octohedres are larger and more easily recognised. This process, too, has the advantage of precipitating the oxalate of lime pure and unmixed, and consequently free from any causes of obscurity or distortion of outline, or of the other properties of recognition.

The acetic acid, though it dissolves the prismatic phosphate and, under particular circumstances, the phosphate of lime, yet will neither dissolve nor hold in solution the oxalate, which therefore separates in the octohedral form, and perfectly secured from any mixture of other salts, all of which it will hold in solution. The double phosphate of magnesia and ammonia, if it exist in the solution and be required, may be precipitated by neutralising the excess of acid by means of potass or its carbonate. When time presses we need not wait for the filtration of the whole of the acetic solution, but allow the first few drops of the filtered fluid to pass into a narrow tube containing a diluted solution of oxalic acid. When, even no turbidity whatever can be perceived, if the tube be corked and inverted for a minute or too, the octohedres will be collected on the cork and may be transferred to the glass slide.

As previously stated, although the prismatic phosphate may have its appearance in some degree obscured, still never so much as to render its appearance and indentification impossible or even questionable. If, then, we wish to decide the question merely as to phosphate of lime, we have only to add solution of hydrochlorate of ammonia, agitate the mixture, and precipitate the filtered fluid by solution of oxalic acid or oxalate of ammonia, octohedral crystals will be obtained equally as before. The phosphate in its hydrated or gelatinous state, as when recently precipitated, is soluble in hydrochlorate of ammonia, but the prismatic crystals are not; consequently the two salts may be thus separated.

I was first induced to submit these few explanatory observations to the Profession as rendering inquiries easy and expeditious, which many have represented to me as tedious and difficult. This I consider as of peculiar advantage in the discovery of the presence of oxalate of lime. I am, therefore, not a little surprised on perusing the following observations of Dr. Bence Jones. Speaking of the oxalate of lime, he observes:—

"It requires no skill, and no preparation of the urine, to find the oxalate of lime. Generally oxalate of lime octohedra are found without the least difficulty," &c.

I must confess that I cannot agree in this statement generally, or even as a general principle. In hospital establishments and public infirmaries, where the patients are under constant *surveillance*, and where all those difficulties and obstructions which occur in private practice can be met and obviated, the discovery of oxalate of lime may prove tolerably easy in sufficiently practised hands, but from this, as a general proposition, I must dissent. In this view, too, I think I am supported by Dr. Golding Bird, who gives special directions for their collection and adjustment.

With respect to time, however, Dr. Bence Jones admits that such is required. "The urine," he says, "should be left to stand for twenty-four hours in a bottle or tall glass; the upper part of the fluid should be poured off, and the last few drops remaining in the glass or bottle should be examined."

By the plan proposed little or no time—beyond a second or two—is required, and we have the advantage of seeing the crystals distinct, as well as those principles which may co-exist with them in the urine, and these equally distinct and recognisable.

The authority above noticed also throws some doubt upon the nature or composition of the octohedral crystals. He says:—"Generally oxalate of lime octohedra are thus found without the least difficulty: sometimes in large crystals, very frequently in aggregations of small octohedra, forming microscopic calculi. Dr. Golding Bird was the first observer who stated that these crystals, which had for some time previously been observed in urine, were oxalate of lime. The chemical proof is difficult, if not impossible, to obtain, for the octohedral crystals are rarely present in sufficient quantity to admit of perfect examination."

I must say of these statements, that I myself in no way agree with them, neither do I think the question of such insurmountable difficulty; nor are the crystals always so scanty in quantity as to evade the chemical proof of their composition. The first proof I would offer is, that from a specimen of almost any urine, previously acidulated with a little acetic acid, oxalic acid will throw down *octohedral crystals*, presenting in every particular the microscopical appearances and characters of those occurring spontaneously in urine. Secondly, If the gelatinous phosphate of lime precipitated from the solution of chloride of calcium by phosphate of soda, be re-dissolved in diluted acetic acid, and the acetic solution treated with solution of oxalic acid, octohedres, precisely like those observed in the urine, will be thrown down. Octohedres, also, of precisely similar appearance, may be thrown down by oxalic acid from the solution of the same phosphate in hydrochlorate of ammonia; and still more speedily, by oxalate of ammonia as the precipitant.

With respect to the quantity for chemical proof I can only say, that I have at the present moment frequent occasion to examine the urine of three individuals, depositing the octohedral crystals in large quantity, intermixed with rhombs and prisms of uric acid; and, in a fourth case, with urate of ammonia. If the micturitions of twenty-four hours, of any one of these cases, be collected, the octohedres will be found in quantity sufficient for any chemical proof of composition; and I have determined, qualitatively, the chemical composition of all. The following is the process adopted:—

The urine contained uric acid intermixed with the octohedres, and having remained at rest, was decanted, and the subsided sediment washed with distilled water, and then agitated with a dilute solution of potass, at the temperature of 98° Fahr. Being left at rest, a cloudy, mucous-looking sediment, rather bulky, occupied the lower part of the jar. The supernatant fluid being poured off, and the precipitate washed, was allowed to subside. Collected and dried, it was treated as follows:—

A portion heated in a platinum spoon over the spirit lamp, for a few seconds, dissolved with effervescence in dilute acetic acid. Another portion, ignited before the blowpipe, dissolved very sensibly in water reduced to the temperature of 31° Fahr.; the solution had a strong alkaline reaction. Both these solutions gave precipitates with oxalic acid, which, examined with the microscope, were found to consist of octohedral crystals, thus leaving no doubt of the base being lime.

To determine the nature of the acid, a small quantity of the collected crystals were dried, by being placed under a jar, over strong sulphuric acid. They were then distilled with concentrated sulphuric acid in a tube retort, and the products received in a graduated tube over mercury. A volume of gas was the product, one half of which disappeared on agitation with solution of barytes, and the remaining volume burned with all the characteristics which distinguish the combustion of carbonic oxide. These facts, I think, put the question of the composition of these crystals beyond all possibility of doubt.

There is another remark of Dr. Bence Jones which I think it right to notice here. He says:—"Oxalate of lime is so insoluble in distilled water, that it might well be considered insoluble in the urine. Its occurrence in the form of crystals shows, however, that it cannot be insoluble, for crystalline form implies deposit from solution. Careful observation of the urine also shows that the oxalate of lime is soluble therein."

Previous solution is not necessary to crystalline form. Fused sulphur crystallises on cooling; arsenious acid sublimes in octohedral crystals. But the authority above noticed states a more important fact, namely, that a gentleman, aged fifty-nine, passed about a drachm of urine at half-past ten in the morning. It was examined immediately, but no oxalate of lime could be detected, although this principle was expected and looked for. On examining, at nine the following morning, a drop under the microscope, myriads of small crystals of oxalate of lime were seen.

For myself, I can only say, that I have never been able to detect oxalate of lime crystals in urine which had been filtered before being set aside. I have filtered urine immediately it was passed, and which was known to contain octohedral crystals; but no such ever appeared in the filtered portion; nor could I precipitate them by any re-agent, chloride of calcium or acetate of lime. I know of no urinary re-agent capable of holding oxalate of lime in solution; and it is impossible to conceive that oxalic acid may be generated in the urine after it has been emitted from the body. Dr. B. Jones, speaking upon the question, further observes: "I had for some time passed over similar observations, by supposing that my first examination had not been made with sufficient care; but, from the above, and other cases that have since occurred to me, I am certain that it sometimes requires many hours for the oxalate of lime to crystallize out. You cannot say that no oxalate of lime exists in any urine until at least twenty-four hours have elapsed from the time of the passing of the water."

Oxalate of lime being insoluble in all the organic acids, the only way in which these statements can be reconciled is by supposing the co-existence of free hydrochloric or nitric acid; together with urea, and some principle capable of exciting decomposition of the latter, and its conversion into carbonate of ammonia. In this way the acid would ultimately become neutralized, and its solvent powers suspended, and of course the oxalate of lime would in such circumstances separate! I have decided this question by experiment. Oxalate of lime may be dissolved in the acid, and re-precipitated by an alkali added till neutralization has been effected.

With some slight modifications, the foregoing plan for the identification of urinary sediments will be found equally applicable to the examination of phosphatic calculi. It has been stated, that phosphate of lime is soluble in both acetic acid and solution of hydrochlorate of ammonia. But this is to be understood as applying to it only in its hydrated or gelatinous state. After ignition, or after being dried, it is insoluble in either menstruum. Under these circumstances, if the calculus consist wholly of phosphate of lime, a small portion may be ignited before the blow-pipe, to destroy the animal matter with which it is intermixed. The fragment should then be pulverized. But on the other hand, should it consist of the fusible or mixed phosphates, the fragment is to be pulverized without ignition and reduced to an impalpable powder. The powder is to be dissolved in diluted hydrochloric acid, adding acid if necessary to complete solution. The solution is to be filtered, by which the animal matter will be separated. If ammonia be now added to the filtered solution, in quantity sufficient for neutralisation, the double phosphate will be precipitated, and may be recognised by its microscopic characters; but the phosphate of lime will be held in solution by the hydrochlorate of ammonia formed. If a solution of oxalic acid or of oxalate of ammonia be added to the phosphate of lime held in solution by the hydrochlorate of ammonia, and freed from the prismatic crystals by filtration, octohedres of oxalate of lime will separate, and may be readily recognised under the microscope. Where very great haste is required, all the characteristic phenomena may be evolved and made manifest by treating a single drop of either solution upon the slide with a drop of the appropriate test or re-agent, and, after a few seconds, placing the object under the microscope.

It is hardly necessary to say that these methods are equally applicable, not only to the sediments spontaneously deposited, but also to those artificially precipitated from urine by re-agents. If, for instance, to a small portion of clear or transparent urine in a test-tube any re-agent be added—oxalic acid, for instance, or sesqui-carbonate of ammonia—and the tube corked and inverted, after a few seconds a sufficient quantity of the precipitated matter will be found adhering to the cork, and may be transferred to a slide and examined under the microscope.

[Dr. Venables remarks, that we often meet with urine above the specific gravity of 1·025, or even 1·030; and he says, that if the quantity is normal it generally denotes excess of urea or presence of sugar. It is most important to decide if sugar is present. But the presence of sugar may be detected in urine of low specific gravity, even when no higher than 1·015, and the quantity voided be only between thirty and forty ounces by measure in the twenty-four hours.]

The most ready and speedy of the processes at present in practice for the detection of sugar are founded upon the following principles:—First, the capabilities of the carbon of sugar, under certain conditions, to reduce certain of the metallic oxides, as of copper, silver, &c. Grape sugar, as in diabetic urine, exerts these powers much more speedily than cane sugar. Liquor potassæ also, as pointed out by Mr. Moore, exerts certain agencies upon sugar, and which provide us with a tolerably ready means. Still it has been represented to me, that these processes are not always quite so manageable, at least in the hands of those not expert in the practice of such manipulations. To such, then, I would suggest the following, as practically perhaps more simple and manageable.

Diabetic urine, in consequence of the sugar it holds in solution, undergoes, under favourable circumstances, in a very short time the vinous or alcoholic fermentation. This, the fermenting process, is generally greatly expedited by the addition of a *ferment*—for instance, a little yeast. The fermentation is attended with the formation of certain *confervoid vegetations—torulæ*—which collect upon the surface in the form of a whitish-looking scum, appearing like fine flour sprinkled over it.

To develope these phenomena, a quantity of urine should be poured into a shallow basin or evaporating dish,—a common saucer, if there be nothing else at hand, will answer the purpose very well,—so as to present an extended surface. The temperature should be raised to 75° or 78° Fahr. A small quantity—a few grains—of German yeast is to be mixed in and well diffused by stirring with a glass rod or piece of wood. The whole is then to be set aside in a place the temperature of which should be about 78° Fahr. Where this is inconvenient the temperature may be kept up by floating the dish in another containing a large quantity of water heated from about 85° to 90° Fahr., and the whole set aside. In a very short time—sometimes only a few minutes—provided sugar be present, an intestine motion commences, bubbles of gas rise to the surface, and the fermentation has commenced. A whitish-looking scum soon appears, spreads, like a film, over the surface. If a little of this scum be removed by a camel-hair brush, or a feather, or by touching the surface with the end of a cork, a sufficiency may be transferred to one of the slides. Examined under the microscope it will be found to consist of a number of minute vesicles of a somewhat oval form. As the decomposition proceeds, these vesicles elongate, forming a sort of stem; from which others sprout laterally, and indeed in all directions. The first stage may be observed in about a quarter of an hour, often in a much less space of time; but in an hour or two the vegetative process is complete, and torulæ may be seen, in all stages of their growth, under the microscope. If the process be conducted in a bottle, the intestine motion may be observed in a very few seconds; and, if the bottle be corked, the cork being removed from time to time, the escape of pent up gas, on removing the cork, will indicate the evolution of carbonic acid, and a portion of the scum taken from the surface will prove the development of torulæ.

It has been already stated, that the production of torulæ is attended with a process -vinous fermentation—accompanied with the generation and extrication of carbonic acid gas. This gas, or at least its cubic volume, is a sort of equivalent or index of the quantity of sugar pre-existing in the fermented liquor. To determine the amount of sugar, then, we must so conduct the fermentative process as to be able to measure the cubic volume of gas disengaged, as each cubic inch of gas is equivalent to, or indicates, one grain of sugar.

[It is well known that the alkaline earths powerfully attract carbonic acid, lime and barytic waters attract it from the atmosphere and become muddy or turbid, and as the carbonates of these earths are insoluble, they precipitate. These facts point out to us a certain method of estimating the amount of sugar present in the urine.]

I myself (continues Dr. Venables) have never found any difficulty in the detection of sugar by this process; and, if the object be merely to ascertain its presence, irrespective of quantity, the process is very simple. We have only to introduce the urine into any bottle, adapt to it a cork fitted with a conducting tube, and excite fermentation, conducting any gaseous product into barytic water, which will become turbid if sugar be present. Torulæ may be looked for in another portion set aside to ferment in an evaporating dish or saucer.

I have tried the delicacy of these processes in a great variety of ways. It is not always possible to obtain diabetic urine, but we can readily prepare it, or a substitute for it, by dissolving the grape sugar in ordinary urine; and I have found that I could not only detect, but determine the amount by weight, of half a grain of grape sugar in 1000 grains of urine within 003 parts of a grain; and even this error probably might have been avoided by a little more care and attention in conducting the different parts of the process. It is evident that the other modes of detecting may be made use of to confirm the correctness, indeed, of each other.

I never met with any instance in which the cork did not retain quite sufficient for examination, but, by attaching a piece of chamois leather, &c., to the end, the adherence may be more completely secured.—*Med. Times, January* 25, *p.* 86, *and February* 15, 1851, *p.* 173.

## 62.—ON SOME VARIETIES OF RENAL DISEASE, WITH ESPECIAL REFERENCE TO DIAGNOSIS AND PROGNOSIS.

By Dr. George Johnson, Fellow of the Royal College of Physicians, and Assistant-Physician to King's College Hospital.

[The following cases will point out some of the circumstances requiring particular attention in cases of renal disease. In many of the most obvious circumstances all the forms of renal disease are alike; the differences, however, by careful examination may be readily and certainly appreciated.]

The microscopical examination of the urine is much facilitated by placing it in a conical glass which will contain about three or four ounces. The fluid should be allowed to stand for a few hours before examination. I usually put it in the glasses at night, and examine it with the microscope on the following morning. This delay is not necessary if the sediment is abundant; but in many cases, when the sediment is small in quantity, it is quite essential that time should be allowed for its deposition to take place. A small quantity of the lower part of the liquid should then be removed with a pipette, and placed in a shallow cell for microscopical examination.

Case I. *Acute Desquamative Nephritis—Urine very scanty, and highly Albuminous, with Epithelial Casts—Epileptic Convulsions and Coma—Recovery.* I was called to see Ann Fers, æt. 54, as a dispensary patient, on the 6th Dec. 1849. I found her in a state of semi-stupor, and learned that she had been seized with a convulsive fit in the night. She had a wild, distracted look. The tongue was brown and dry. I subsequently learnt that, during the preceding six or seven months, she had lived very badly, in consequence of her husband being out of work. She had gradually become weak; and had restless nights, with frightful dreams, and spectral illusions. About a fortnight before I saw her, she had become much worse, with vomiting, intense headache, slight general dropsical swelling, pain in the back, and very scanty secretion of urine. She was ordered to have six leeches applied to the temples, and to take three grains of calomel every four hours.

In the course of the evening some urine was obtained. It had an abundant precipitate of lithic acid. and contained numerous *casts of tubes, with entire cells of renal epithelium;* when boiled it became almost solid with albumen.

[On the 7th there had been no return of the convulsions: ordered to be cupped in the lumbar region. On the 8th she was better, relieved by the cupping, consciousness having returned soon after the operation. The urine was more abundant and clearer, and gradually became more so. Jan. 3rd, 1850, the urine was still albuminous, sp. gr. 1010, pale, abundant, and containing a very few casts, entangling disintegrated particles of epithelium. She ultimately completely recovered.]

With reference to treatment, I have found, in other cases of acute desquamative inflammation of the kidney, that cupping in the lumbar region has afforded the same immediate relief to the cerebral symptoms which was so striking in this case. There is no remedy in which, under the same alarming circumstances, I have an equal degree of confidence; and I feel assured that the abstraction of a small quantity of blood by cupping, from the region of the kidneys, is much more efficacious in removing cerebral symptoms, than any treatment directly applied to the head. In all cases of acute renal disease, whether occurring as a consequence of scarlatina, or from any other cause, when the urine is very scanty, and the patient complains of severe head-ache and drowsiness, there is much reason to fear that these symptoms may be followed by convulsions and coma; and unless the earlier symptoms are checked by a rigidly low diet, free purging, and the use of diaphoretics, no time should be lost in applying cupping glasses with the scarificator over the kidneys. The congestion of the renal blood vessels is by this means lessened, the secretion is quickly increased, and the blood being thus purified, the cerebral symptoms are directly relieved. It must always be borne in mind, that an imperfect elimination of the urine will impoverish the blood more than the abstraction of a moderate quantity from the vessels, and that an attack of convulsions, if it did not end in fatal coma, may produce greater injury in the brain than all the powers of nature or of art can repair.

Case II.—[The second case is one of *Chronic Desquamative Nephritis.* The patient, Benjamin Hobday, a waiter, æt. 47, was attended in January, 1847. He was in the habit of drinking freely, and had several times had gout. Three months ago, he had slight appearances of dropsy, but these soon subsided.]

This present illness began, six weeks before I saw him, with cough and mucous expectoration. There was large crepitation over both sides of the chest. He was losing flesh; he always appeared dull and heavy; and his tongue was dry and brown. He took an antimonial mixture without relief. The urine was scanty and high coloured; it contained a small quantity of albumen, and numerous *dark brown casts, apparently composed of disintegrated epithelium.* No blood corpuscles were observed. The specific gravity of the urine was not noted.

Jan. 25. He had several attacks of convulsion, in the intervals of which he lay muttering and insensible. On the following day he died.

*Post-mortem Examination.* The brain and its membranes appeared quite healthy. The lungs contained scattered crude tubercles, and were much engorged and carnified. The only organs decidedly diseased were the kidneys; and they presented the characteristic appearances of chronic desquamative nephritis. The cortical substance was wasted, and its surface irregular and granular. Some tubes contained an excess of cells, differing little in appearance from the normal epithelium; while the greater number of the tubes contained the same granular material, which, when washed out, had evidently formed the casts which were observed in the urine during the life of the patient. Other tubes, again, were pale and transparent, being composed only of basement membrane; the epithelial cells, which probably had first become disintegrated, having been washed away by the current of liquid passing through the tubes.

*Remarks.* The preceding case is an example of the form of renal disease, which is very commonly observed in gouty subjects. The blood is contaminated by certain morbid matters, as a consequence of the gouty diathesis; the kidneys make an effort to eliminate these materials; and, in doing so, their secreting cells undergo a modification. They become opaque and granular, then completely disintegrated, and subsequently are washed away, leaving the tubes denuded. After the destruction of the secreting cells, the tubes waste, in consequence of the removal of the vital attractive influence of the cells upon the blood. The cortical substance thus becomes irregularly contracted and granular.

There is one point of view in which it will be instructive to compare the case of Hobday with that of Fers. It might have happened to me to have seen Hobday for the first time, as I did Fers, soon after the first attack of convulsions. The question arises,—were there any distinctive signs in the two cases, which would have suggested, in the one case, a much more hopeful prognosis than in the other? This is clearly a question of great practical importance, and one, too, which happily admits of a decisive and satisfactory answer. In the case of Fers, the urine contained what I have called "epithelial casts," that is, fibrinous matter entangling *entire epithelial cells*; and these, with albumen, and, very commonly blood, in the urine, indicate a recent acute disease in the kidney. In such a case, there is much reason to expect recovery, if we can succeed in warding off the urgent symptoms induced by the poisoned condition of the blood, consequent on the impaired excretory function of the kidney. In the case of Hobday, the appearances were very different. The casts in the urine were composed of *granular particles of disintegrated epithelium.* My observation has taught me to associate this form of cast with a chronic disease in the kidney. Where these casts have been observed in the urine during life, the kidneys will be found after death more or less wasted, sometimes extremely so, and the tubes will be in the condition described in the case of Hobday, some being entirely denuded, and others filled either with disintegrated epithelium, or with cells differing more or less from the normal epithelium. This chronic form of disease may have advanced to the extreme stage of atrophy before the occurrence of any urgent symptoms. Amongst the most common and most serious of its ultimate consequences, is an attack of convulsions, recurring more or less frequently. Now if, in a case in which convulsions have once occurred, we find the urine albuminous and containing the "granular casts" described above, we must be prepared for a recurrence of the attacks, and for the probability of a speedily fatal termination.

I must beg my readers to bear in mind, that the preceding remarks relate to cases in which convulsions or coma, or other serious mischief, have resulted from deficient renal excretion, such symptoms affording evidence of extensive disease in the kidney, which, if it have gradually advanced to that degree by a process of chronic inflammation, is but very little under the influence of treatment. The "granular casts," *per se,* indicate merely the *form* of disease, and not the stage of its progress, or the degree of mischief which it has produced. Still the existence of these casts is a very important sign, being present from the very commencement of the chronic desquamative process. They may often be detected before the disease is so far advanced as to render the urine albuminous; and at this early stage of the disease we have most reason to expect that our remedies will be successful. Further, the proportion of this granular material in a given quantity of urine, affords an index of the rate at which the disease is progressing. The granular casts are composed of disintegrated epithelial cells, which, being thus shed, appear in most instances not to be reproduced; the greater, therefore, the quantity of this material discharged with the urine, the more rapid must be the destruction of the secreting tissue of the kidney, and the more speedy will be the occurrence of urgent symptoms from suppressed secretion. In the extreme stages of chronic desquamative disease, the granular casts sometimes disappear more or less completely, and are replaced by casts of a very different kind, as will be seen in the history of the succeeding case.

It may be well to remark in this place, that there are at least two circumstances, under which the occurrence of granular casts does not indicate the chronic disease above alluded to. A moderate amount of care will, however, in either case prevent an error of diagnosis. *First,* after an attack of acute desquamative nephritis, it commonly happens, that for some days, while the urine is returning to its normal condition, casts composed of disintegrated epithelium and blood are discharged with the secretion; these gradually diminish in number, and soon entirely disappear. *Secondly,* after an attack of renal hemorrhage, some blood, which has remained in the tubes, becomes disintegrated and washed out in the form of granular casts, which, however, have generally a yellowish-brown blood-colour, and this would suffice to distinguish them from the epithelial granular casts. In addition to this the occurrence of hæmaturia would be almost conclusive evidence of the non-existence of chronic desquamative nephritis, the extreme thickened condition of the blood-vessels in that disease rendering the occurrence of renal hemorrhage, at least in the advanced stages, a very rare accident.

In one case of scurvy, I observed yellowish-brown granular casts, which I at first supposed to be indicative of chronic desquamative disease, but which I subsequently found to be composed of disintegrated blood-corpuscles and fibrin. The man quickly recovered under the care of Dr. Todd, in King's College Hospital, and, in a few days, the casts entirely disappeared.

CASE III.—[The third case is one of *Acute Desquamative Nephritis, passing into Chronic.* About seventeen years since, the patient, John Revels, æt. 30, had been ill a month with dropsy, but recovered completely. About seven or eight months ago there had occasionally been swelling of the face and hands. His urine was, at that time, very high coloured, like porter, and scanty. He first came under examination on the 17th of November, 1847. Pulse 88; skin cool; tongue clean; no thirst; appetite good; but distressed with the common symptoms of chronic renal disease, flatulence for about two hours after eating.]

He passed about four pints of urine in twenty-four hours, of specific gravity 1012. It deposited a rather abundant dense whitish precipitate, composed of dark granular casts (probably disintegrated epithelium), with some scattered renal epithelium; there was no blood nor crystals; albumen was present in small quantity. The nature and the amount of the sediment at this time indicated rapidly progressing chronic desquamative disease.

[On the 20th Nov. he was admitted into King's College Hospital, under Dr. Todd.]

Dec. 16. I now first observed what I propose to call the "waxy casts" in the urine, mixed with the dark granular casts before mentioned. The waxy casts were of a yellowish white colour, very much resembling wax; they had a well defined outline, and a diameter of 1-400th or 1-500th of an inch; they did not entangle epithelial cells; but some contained, here and there, a few small nuclei, about the size of blood corpuscles.

Dec. 20. The waxy casts were more numerous in proportion to the granular casts. The urine had a specific gravity of 1012; albumen was moderately abundant.

[It was interesting to observe the first appearance of the waxy casts in the urine, and their mixture with the granular ones, which they gradually exceeded. Their appearance in the urine seemed simultaneous to that in the kidney. This waxy material seemed secreted by those tubes denuded of their epithelial lining.

The following are the remarks of Dr. Johnson on the Diagnosis of Fatty Degeneration of the Kidney.]

The urine, in cases of fatty degeneration of the kidney, has characters sufficiently distinctive to render the diagnosis a matter of ease and certainty. It is commonly of a rather pale, yellowish colour. When first passed, it is clear; but, after standing for some hours, it usually deposits a light, cloudy sediment; sometimes, in the early stages, the urine has a dark smoky colour, from containing blood. The quantity secreted is less than normal, and its density in most cases exceeds the healthy standard; it is by no means unusual to find the specific gravity ranging from 1025 to 1030. The albumen is generally very abundant, so that, when boiled, the urine becomes almost solid. On a microscopic examination of the cloudy sediment before mentioned, there may be seen transparent casts of rather small size, in many of which are entangled oil-globules of various sizes, also cells containing oil-globules in greater or less abundance. There are besides scattered cells, more or less completely filled with oil. I might transcribe from the pages of my note-book many cases, in which the urine has presented more or less of the characters here described, and in which not one of the patients has recovered. The majority of these cases have terminated fatally; while, in a few instances, the symptoms continue in a greater or less degree; the urine continuing highly albuminous, and presenting unequivocal microscopical evidence of the true nature of the disease. For the purposes of prognosis, it is as important to distinguish between a case in which the urine presents the characters here described, and a case of simple desquamative nephritis, as it is to distinguish tubercular disease of the lung from acute pneumonia or bronchitis.

Now, since the prognosis in a case of confirmed fatty disease of the kidney is thus unfavourable, it is important that all who examine the matter should clearly understand that albuminous urine may contain a certain amount of oil, entangled in fibrinous casts, or enclosed in epithelial cells; and yet the disease may be of a simple nature, and may speedily terminate in recovery. It is very common to find small quantities of oil in the casts and in the cells, after a simple inflammation of the kidney has existed for three or four weeks. Now, since an inflammatory disease does in some instances become chronic, and terminate in confirmed fatty degeneration, the appearance of any oil in the urine must occasion a certain degree of anxiety, lest it should increase in quantity, and take the place of the simple inflammatory products.—*London Journal of Medicine, Feb.*, 1851, *p.* 109.

---

63.—*On the Coincidence of Eclampsia and Albuminuria.*—M. HIPPOLYTE BLOT submits the following conclusions on this subject:—

1. Albuminuria is frequent in pregnant women.

2. In almost all cases it is the result of a simple functional hyperæmia of the kidney.

3. It is remarkable and inexplicable, that *primiparity* seems to be a predisposing cause.

4. Besides the presence of albumen in the urine, other signs of this condition may be observed,—such as œdema and lumbar pains.

5. The albuminuria of pregnancy is almost always free from febrile excitement.

6. In nearly every instance the albuminuria disappears a few hours after labour.

7. This condition of pregnancy is free from danger when uncomplicated with cerebral congestion; it has no influence on the course or termination of gestation, on the development of the fœtus, on the duration of the labour, nor on the subsequent natural puerperal state.

8. Every state of eclampsia seen by M. Blot has been accompanied with albuminuria.

9. The relation between the two is obscure; they may depend upon sanguineous congestion occurring at the same time in the kidneys and cerebro-spinal centre.—*L'Union Médicale, October,* 10, 1850.—*Med. Gazette, November* 22, 1850, *p.* 874.

64.—*On the Occurrence of Starch Granules in the Urine, and on the Microscopic Examination of this Secretion.*—By DR. THOMAS INMAN, Liverpool.—[Dr. Inman's attention was drawn to this subject by a statement made by Mr. Balman in the 'Medical Gazette,' that he had met with one case in which the granules were so abundant as so form a distinct deposit, visible to the naked eye. Dr. Inman says:]

I can corroborate his statements respecting the frequency of the presence of granules, and his observation that they consist usually of wheat starch. The fact is one of considerable interest. It is, I think, almost self-evident that they must exist in the urine accidentally, and must be introduced into it subsequent to its passage from the bladder.

We may imagine many ways in which they may be so introduced; the most common is probably the following:—Bread being an universal article of diet, its crumbs are to be found in every house. Falling on the floor they harden, get trodden to dust or powder. When the floor is swept or the foot passes over, the dust rises, and part gets deposited on the internal surface of all the chamber utensils, and of every unclosed bottle. Urine is voided into its usual receptacle, and poured thence into a bottle for examination, and is then found to contain wheat starch.

That such is occasionally the case I may illustrate by the following observation:—

The urine of a young man who had signs of a morbid growth in the bladder was given to me for microscopic examination. In it I detected a very minute white mass, like a flake of lymph. It consisted apparently of a number of indistinct reticulations, and a number of cells which closely resembled in their general aspect some animal formations. At last I saw one which had an appearance so like boiled wheat starch that I applied the test of iodine. I then found that all were turned blue, and that the fragment was therefore a piece of bread or biscuit accidentally introduced.

When the quantity of starch is as great as that described by Mr. Balman in the case he narrates, we must suppose that the patient introduces it in some way, either accidentally or with the intention to deceive.

I may add, in corroboration of the idea that in no case can the starch be a urinary product, that this fluid will entirely dissolve when added to a hot solution. It would equally prevent the formation of the granules.

While on the subject of the urine, I may mention a curious observation I made a short time ago on a specimen sent me for examination. When first seen it contained nothing beyond cubical crystals of oxalate of lime, which existed in immense numbers. Next day *more than* half of these had disappeared, and their place was taken by stellar and prismatic crystals of the triple phosphate.

As the phosphatic and oxalic diathesis are supposed to be closely allied, the apparent conversion of one deposit into the other out of the body is particularly interesting.

I scarcely need add that the power used was a quarter-inch of Powell's, that there was no mistaking the one set of crystals for the other, nor was there any opportunity for any practical joker to change the contents of the bottle.—*Med. Gazette, November* 22, 1850, *p.* 879.

# SURGERY.

## FRACTURES, DISLOCATIONS, AND AMPUTATIONS.

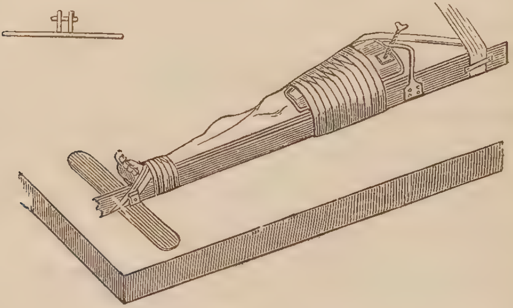
### 65.—CASE OF FRACTURE OF THE THIGH.—MR. WOOD'S IMPROVED SPLINT.

Our readers are fully aware what an unfortunate tendency exists in the upper fragment, when the femur has been fractured at the junction of the upper with the middle third, of being tilted forwards and outwards by the action of the psoas and iliacus muscles. Various contrivances have now and then been added to the long splint to counteract this action; one of these lately attracted our attention as used for a patient under the care of Mr. Fergusson, and introduced by Mr. Wood, the then house-surgeon to the hospital.

The patient is a man of sixty-six years, who was admitted July 25, 1850, for a fracture of the femur, situated just below the lesser trochanter. The accident had been the result of a fall caused by treading on a piece of orange-peel. The actual seat of the fracture having been ascertained, the limb was put up in Liston's long splint, another broad one being adapted to the front of the thigh, and retained by a circular bandage. Matters went on pretty favourably, when, about five days after admission, gouty inflammation, to which the patient stated he had been subject, appeared on the great toe of the injured limb. This circumstance of course necessitated the removal of the foot bandage, which was replaced by a loose flannel roller, the toe having first been wrapped up in cotton wool.

When, a fortnight after this, the seat of the fracture was examined, no attempt at union could be perceived, and it was, on the contrary, noticed that the upper fragment was drawn forwards, and separated from the lower by the action of the psoas and iliacus muscles. This want of adaptation caused a projection in front of the thigh, about three inches below the great trochanter, which projection tilted up the end of the broad splint, notwithstanding every adjustment of the bandages. There was also at that time, considerable shortening of the limb, resulting from the necessary loosening of the foot-roller.

In order to remedy the tilting of the upper fragment, Mr. Wood fixed a screw clamp on the side of the long splint, and made it bear on the upper end of the broad one, and the foot bandage was then again tightened, as the gout had luckily disappeared. Attention was now attracted to the lower portion of the limb, as the action of the screw was found to increase the tendency to outward obliquity of the foot, so common and troublesome with the use of the long splint. Under these circumstances, a further improvement in the apparatus was attempted: a long flat piece of sheet-iron, with two uprights fixed in the centre, was placed, transversely, at the foot of the bed; the width between the two vertical pieces being just sufficient to admit the lower end of the splint. The latter was fastened in by an iron bolt, and this arrangement effectually prevented the eversion of the foot, which is unfortunately so often seen after treatment of fractured thigh by the long splint. The whole apparatus is figured in the annexed engraving.



The limb remained perfectly easy and comfortable for about one month after it had been placed as described above, when the splint was removed and the bones found firmly united. On close examination, a slight bend outwards was discovered at the point of union, which evidently resulted from the traction of the perineal bandage in the same direction. This curve in the limb produced a shortening of the limb of about one inch; the limb was a little swelled, and the muscles of the thigh were rather flaccid, from disuse. Stimulating liniments soon dispersed the swelling, and the muscles increased in strength, as the limb was being cautiously used. The patient, from his extreme nervousness, and long confinement, acquired very slowly the power of standing and walking with support; but about seven weeks after the accident, he could stand on the injured limb, and walk very nimbly, with the assistance of his crutches.—*Lancet, Nov.* 23, 1850, *p.* 579.

---

## 66.—ON THE REDUCTION OF DISLOCATIONS GENERALLY.

### By F. C. Skey, Esq., F.R.S.

In the endeavour to reduce a dislocation, the line of traction should hold reference, less to that of the socket, or surface from which the bone has been displaced, than to the more important purpose of easing it from the surface, on which it has lodged. For example, the rim of the glenoid cavity in dislocation of the humerus, presents an obstacle to the extension of the bone in the immediate line of that cavity; but if the bone be drawn off it by extension made in any oblique direction, the instant this ridge is passed, the head will rush back into its natural cavity. So, also, in dislocations of the femur on the dorsum ilii, we do not attempt to draw the bone in a direct line with the acetabulum, but we carry it below, round its back and elevated margin, and no sooner does it reach the lower part of the rim, which is much less prominent than the upper and back part, than the muscles immediately restore it to its socket. The same rule holds in dislocation of the ulna and radius backwards at the elbow-joint. I believe the exact line of extension to be much more readily determined, and in truth a less important subject of consideration, that it is generally deemed. I believe, that if we bring the bone sufficiently downwards and place it in the *neighbourhood* of the articulation, the muscles will replace it with as much ease as that which originally dislocated it.

The bone appears, as it were, sucked violently into the socket, even at the instant of its sustaining the greatest force of extension. Then is it, that the muscles acting with one accord, set at nought the extending power, and complete the work of reduction, in defiance of all the agents employed at the moment to prevent it. I consider that the muscles are the immediate agents of reduction, and not the surgeon, whose entire duty consists in placing the bone in a position to give them the opportunity of displaying this harmony of action, and of exercising a power, even beyond that of the mechanical agents of extension. It is this power that succeeds in forcibly drawing backwards the head of the femur into its cavity, when it has fairly reached the rim of the acetabulum, notwithstanding the force employed at that instant, in extending it. In the examples of the larger dislocations, I place no reliance on any of the above-mentioned efforts of manipulation, but depend almost entirely, on the act of simple extension, in the fullest confidence of the disposition of the joint to right itself if the obstacles be removed.—*Brit. and For. Med. Chir. Review, April* 1851, *p.* 287.

---

67.—*On the Reduction of the Dislocation of the Humerus into the Axilla.* By F. C. SKEY, Esq.—With respect to the plan of placing the heel in the axilla, it should be constantly kept in mind, that the shoulder-joint has this peculiarity in its construction, viz., that it is composed of two bones, each of which is moveable on the trunk, and that, in the act of extension, we not only affect the position of the bone we are extending, but, through the agency of the muscles connecting them, we also affect the relations of the bone we are extending *from;* and in the case of the humerus and scapula, that the agents of extension do affect both bones, cannot be doubted. By fixing the scapula, we retain the glenoid cavity in a direction looking straight outwards from the trunk; but if we leave the scapula untouched, then, by the act of drawing down the humerus, we depress at the same time the acromion, by means of the deltoid which is attached to both. The consequence is, that in depressing the acromion we *direct the socket of the bone towards the dislocated head,* and readily get rid of the obstacle, which is often immediately caused by the rim of the glenoid cavity alone, and we bring the two surfaces of bone within the range of what I may term their natural affinity, and by the agency of which they immediately coalesce. With the heel in the axilla, we make a simple extension of the arm from the wrist; we leave the scapula unfettered, to assume its own direction; and by the extending force, slightly as it is applied by one person only, *the scapula is made to revolve on its centre, through the leverage exercised on the acromion by the deltoid;* and the pectoralis major and latissimus dorsi, being thus relaxed, exercised no prejudicial influence on the movements of the humerus. I have seen the protracted efforts of pullies, drawing outwards, fail again and again, with the utmost effort, when the head of the bone has been restored to the glenoid cavity, by the single agency of one person subsequently placing his heel in the axilla.

There is no reason why, in very musuclar subjects, or in old dislocations, the same principle may not be applied conjointly with the use of pullies. For the purpose of retaining this admirable, because most efficient, principle, I employ a well-padded iron knob, which may represent the heel, from which there extend laterally two strong straight branches of the same metal, each ending in a bulb or ring of about four inches in length, the office of which is designed to keep the margins of the axilla as free from pressure as possible; for what operation can be more absurd than the endeavour to fix the scapula by means of girds carried round the shoulder, in which we include the margins of this cavity, viz., the pectoralis major and latissimus dorsi, as in a vice, and by which we endeavour to drag up the arm, *at the same instant that we make the most strenuous efforts to drag it down by a yet superior force?*—*Brit. and For. Med. Chir. Review, April,* 1851, *p.* 287.

---

## 68.—ENCEPHALOID TUMOUR ROUND THE FEMUR—AMPUTATION.

(Under the care of MR. CHARLES GARDINER GUTHRIE.)

[By the labours of Laennec, Cruveilhier, Müller, Carswell, &c., the classification of malignant growths, founded upon well-defined characters, affords great assistance to us in practice.]

If we are not greatly mistaken, three types of cancerous growths have now taken a prominent and very clear position—viz., scirrhus, encephaloid disease, and colloid growths. The latter is so rare, that it hardly need arrest attention, and the mind of the student, and even practitioner, feels at ease, the diagnosis being thus assisted by a definite idea of certain well-recognised types. It matters not whether we call these types scirrhoma and cephaloma, after Dr. Carswell, or whether we retain the above names, which seem to be the most current among surgeons.

Difficulties may be thrown in the way when we attempt to recognise either of these types, either from the locality in which they may have sprung up, or from their resemblance with growths acknowledged as non-malignant. Thus it may happen (confining our attention to encephaloid disease) that this affection may be confounded, when in a softened state, with chronic abscess, serous or hydatid cysts, fatty tumours, or the hypertrophy of certain glandular organs, as the mamma or the thyroid body. A due amount of care will, in general, surmount the obstacles which lie in the way of a correct differential diagnosis.

When once the malignancy of a tumour has been made out, it will be ascertained, without much difficulty, whether the growth belong either to the first or second type; but another question, the solution of which has an immense influence on the treatment, is to determine whether the patient is to be operated on at all: and, when surgical interference is resolved upon, to make a choice between the ligature, caustic, extirpation, or amputation. And even when the latter operation is fixed upon, the surgeon has still to decide whether he will, supposing a tumour of a malignant kind to have involved a limb, amputate in the shaft of certain bones, or take off the limb at the joint above.

These considerations came very forcibly before us when witnessing an operation lately performed by Mr. Charles Guthrie at the Westminster Ophthalmic Hospital, his patient being affected with an encephaloid tumour of the thigh. The case created very great interest, both on account of the doubt which existed regarding the extent of the disease, and the numerous surgical authorities who were called upon to give their opinion as to amputation or disarticulation. But the very interesting nature of the case will appear by the outline, which we proceed to give.

The patient is a young man, twenty-four years of age, of a decidedly strumous diathesis, who was admitted under the care of Mr. Charles Guthrie on November 11th, 1850. About eighteen months ago he was attacked with a pain in the thigh, which to him and to others seemed of a rheumatic character. This affection was variously treated, with no benefit, when about six months ago a swelling was noticed at the posterior part of the thigh, about the situation of the commencement of the linea aspera. This tumour increased rather slowly at first, but about six weeks previous to admission, it began to gain rapidly in size.

We cannot here help remarking the fact of the growth having in this case sprung up without any external violence. This circumstance is an additional proof, if any more were necessary, that the falls, blows, &c., which generally are said by patients to have given rise to malignant tumours, are but slight exciting causes which have acted on parts already fully predisposed. Had this patient met with a fall on the part which eventually became spontaneously affected, the tumour would probably have made its appearance soon after the fall.

On admission, the growth was found to have surrounded the upper part of the femur; it had attained the dimension of a man's head, and yielded to the hand the sensation of a soft pulpy substance. The skin was of a purplish hue in front, somewhat stretched over the tumour, and permeated with large veins; the patient complained of a constant aching pain in the part, and seemed to have suffered materially in his health. Mr. Guthrie examined the tumour carefully, and pronounced it an encephaloid growth; it could, however, not be ascertained whether the diseased mass sprang from the bone itself, or from the surrounding parts, or to what extent the former might be involved. As to the nature of the affection there could hardly be any doubt; its rapid growth, the age of the patient, his deteriorated health, the form and feel of the tumour, &c., all clearly pointed to an encephaloid affection. But two questions arose immediately from this diagnosis—Is it proper to amputate? and, where is the operation to be performed?

First, as to the propriety of removing the disease. It was certainly one of those cases where such a measure might be attempted with a very fair prospect of freeing the system altogether from the malignant influence, as the disease was of very short standing, the patient, though weak, not affected with any visceral complaint, and the cancerous affection not hereditary in the family. It could not be discovered that the lymphatics or glands had been much contaminated by the disease, and the case might altogether be looked upon as one favourable to operation. It is, of course, the probable reappearance of the affection, either in some of the viscera or in the stump, which renders the surgeon cautious in advising operations. It is not quite proved, as yet, that encephaloid growths are principally to be attributed to an alteration of the blood, though the recurrence of the disease goes far to support this opinion. Yet, as the affection has in some cases not reappeared after the removal of the primary local manifestation, it may be inferred, that at some particular period the malady is quite local. And even supposing the blood contaminated with cancerous matter, it is difficult to understand (as has been very properly objected) that particles of cancerous matter carried into an organ by the blood, should there have the power of increasing and multiplying.

Mr. Guthrie having considered this as a fit case for the removal of the limb, the next question was, whether the femur should be amputated near the lesser trochanter, or removed at the hip-joint. This problem was not easy of solution, as certain elements were wanting to solve it, for it could not be ascertained whether the encephaloid growth sprung from the bone or not; and supposing it had originated from the femur, it remained to be found out whether the disease extended sufficiently high up to warrant amputation at the coxo-femoral articulation.

If we look into Mr. Stanley's work, on 'Diseases of the Bones' we find the following passage bearing upon this point:—"Still, the ascertained fact of the encephaloid tumour being occasionally combined with unsoundness of the bone to an indefinite extent, is sufficient to warrant the rule, that in such cases the amputation should, if possible, be performed, not through the bone in which the disease originated, but either through the contiguous joint or above it." The advice contained in this quotation is sufficiently distinct, and Mr. Guthrie was fully inclined to follow it; but Messrs. Arnott, B. Cooper, Guthrie senior, Stanley, B. Phillips, Travers, Tatum, H. C. Johnson, Hancock, and Avery, having been consulted on the subject, it was agreed that the limb, should be taken off at the lesser trochanter; that Mr. Stanley should examine the tumour and bone immediately, and if the latter were found involved, the disarticulation should at once take place, but that the hip-joint was not to be disturbed if the bone were sound.

And here we may be allowed to recall to the memory of our readers an extremely instructive case, some time ago, under the care of Mr. Prescott Hewett, at St. George's Hospital, and which we had the pleasure of reporting ('The Lancet,' Dec. 8, 1849, p. 615; and Aug. 24, 1850, p. 245). Here the disease recurred in a comparatively short time, in the stump, after the femur had been amputated high up: but the encephaloid tumour was of the periosteal kind, and therefore identified, as it were, with the osseous tissue. This was not the case with Mr. Guthrie's patient, as will be seen by the sequel; the amputation has taken place in both cases, at about the same situation, but the origin of the tumours is not exactly the same.

Mr. Guthrie proceeded to remove the thigh as high as the lesser trochanter, assisted by Messrs. Hancock, Holt, Canton, &c., the patient being rendered insensible by the inhalations of chloroform, which acted very rapidly upon him. Mr. Echlin being desired to compress the femoral artery close to Poupart's ligament, Mr. Guthrie commenced his first incision from the external side of the artery, very near the abovenamed ligament, and carried it round across the glutæus to a point situated above the tuber ischii, the knife being made to divide the skin and subcutaneous cellular tissue. The second incision run round the inner side of the thigh, beginning on the internal side, and somewhat over the artery, and was carried below the pubis, to meet posteriorly the termination of the first. The muscles were then dissected upwards and inwards from the great trochanter, so as to form the outer flap, the operator being thus able to feel the denuded lesser trochanter with his finger, this being one of the guiding points sought for. The knife was then carried on the inner side of the bone, from without inwards, and made to divide at one sweep the vessels and muscles down to the lesser trochanter. The bone was now fairly exposed, and the saw being applied somewhat obliquely from the greater to the lesser trochanter, the limb was thus completely severed from the trunk.

Mr. Stanley and Mr. Quekett immediately proceeded to examine the parts whilst the arteries were being secured, and after a careful dissection they came to the conclusion that the bone and medullary canal were perfectly sound; the flaps were therefore brought together without any further removal of parts. The patient, as we stated above, had been narcotized by chloroform, and remained in a deep sleep whilst so important a portion of his frame was being removed; but he did not recover his faculties as quickly as is usual in similar cases; he remained, in fact, in a sort of swoon, from which he rallied about an hour after the operation, all proper means being taken for reviving him. It should be noticed that the room was extremely crowded, and that the patient, in his very weak state, probably inhaled a large proportion of carbonic acid along with the chloroform, and was, moreover, under the depressing influence of a heated atmosphere. He was roused, however, soon after the room was completely cleared. The patient has progressed very favourably up to this date, and we sincerely hope that he may remain free from any further inroads of the malady for which he was operated on.

Mr. Quekett, having had the parts removed to the College of Surgeons, examined them again with great care, and kindly communicated to us the following particulars regarding the pathological appearances of the tumour. Both by the naked eye and the microscope the bone was found quite healthy, and some yellow specks seen on the day of the operation in the medullary canal, and supposed to be composed of pus, were discovered to consist principally of fat. The tumour evidently did not spring from the bone, but had clearly arisen between the muscles of the thigh, and lay around the femur. (Dr. Carswell says that malignant disease may begin as a molecular deposit in the tissues affected, from a derangement of their nutrition. We would add, that in a case like the present, such an hypothesis comes very near the truth, as there is no hereditary taint in the family.) The growth is of the common medullary or encephaloid kind, composed of nucleated cells, with no fibrous tissues connecting them together. The external aspect of the tumour is nodulated, and covered by a thin pellicle. On a section being made, the central part was found soft and pulpy, and studded with white spots, composed chiefly of earthy matter, which bore much resemblance to the cysts of the trichina spiralis. By a transverse section it was shown that the muscles invested the tumour; but at one part of the growth it was noticed that the latter was gradually burrowing down to the sciatic nerve. One large nodule looked very vascular, and being cut through, showed a great congeries of vessels.

[It may here be noticed, that some French pathologists, among whom is P. Bernard, are disposed to think that the encephaloid tissue is deprived of veins; whilst Laennec thought that these growths possessed a complete system of circulation. If the former opinion is eventually found the true one, the circumstance will have a material influence on the question of the recurrence of cancerous growths.] Sections of the bone were made in various points, but the osseous texture was everywhere found perfectly sound, the compact portion appearing to the naked eye perfectly firm. The circumference of the tumour, divested of all appendages, was about seventeen inches, and its weight four pounds.

In reviewing the characters above enumerated, it would appear that this tumour may be classed among the non-encysted variety of Laennec. This author says, after describing the peculiarities just mentioned: "The non-encysted encephaloid tumour may be found in all parts of the body, especially in the lax cellular tissue so abundant in the limbs or the great cavities; they are found most often in the arm, *the thigh*, and the neck. Mr. Stanley mentions an example of a tumour of this kind originating in the cellular tissue. He says:......"to this I know but a single exception, in the instance of an encephaloid tumour filling the ham, and then advancing upon the sides of the knee; for here the disease appeared to have originated in the cellular tissue of the popliteal space; certainly it had no connexion with the adjacent bones, which were sound."

As the operation has been performed early, and the whole of the diseased parts removed, we may reasonably harbour the hope, that no recurrence will take place, and we shall conclude with quoting from Nélaton's 'Pathalogie Chirurgicale,' the following passage, which bears mainly upon the question of recurrence:—"Encephaloid substance is, according to Lobstein, composed of albumen and gelatine; treated with boiling water it yields a dull fluid, which, being evaporated, leaves a residue of gelatine and phosphate of lime. Boiling alchohol separates the gelatine, and the matter which is then left, and which has resisted the action of boiling water and alcohol, resembles fibrin or gluten; this residue is made to swell up considerably by the addition of acetic acid. This last substance, according to Gluge, is composed of spherical globules. the smallest of which are larger than the pus globules; they are found not only in the diseased tissues, *but likewise in the neighbouring parts.*" This latter remark. if proved true by further experiment, would have a great importance in practice; for it would explain the frequent recurrence of encephaloid disease, and would show the necessity of taking off, with the tumour, all the layers of the sound tissues in which these germs, as it were, of the cancerous affection, are contained.—*Lancet, Nov.* 30, 1850, *p.* 603.

## ORGANS OF CIRCULATION.

### 69.—PRACTICAL RULES ON THE SUPPRESSION OF ARTERIAL HEMORRHAGE.

By Professor Syme.

In the first place, you should hold it established, that it is always desirable, if possible, to arrest bleeding from arteries by means applied at the seat of injury. Secondly, you may be assured that bleeding at and below the wrist, and at and below the ankle, is always under the control of pressure, provided it be properly employed,—that is, not superficially, but from lint, or some other suitable substance being introduced into the wound, and made to press directly upon the orifice of the vessel. Thirdly, in wounds of all arteries, accessible between the limits just mentioned and the heart, the vessel should be exposed at the seat of injury, and tied on both sides of the wound it has sustained. This principle has been so loudly maintained by Mr. Guthrie, that I believe some people have given him the credit of its origin; but it has been long established as a sound principle of practice by surgeons of the highest eminence both at home and abroad, and more especially by Mr. John Bell, of Edinburgh, in whose 'Principles of Surgery' you will find many graphic and impressive lessons of the effects resulting from attentention to it, and also from its regard.

One evening I received a message from the Northern Railway, that there was a steamboat waiting at Granton to carry me across the Firth to Burntisland, where a special train would be ready to proceed onwards, but whither, or for what purpose, there was no information. Having travelled a considerable distance, I met several practitioners, of great experience and intelligence, who were suffering much anxiety in regard to a youth, in whose forearm an incision for an abscess had bled profusely. As it was quite away from the radial artery, the ulnar was concluded to be the source of hemorrhage, and had been sought for by dissection upwards towards the elbow, along the course of the muscles, between which it is wont to run, but without success; and, as the patient seemed little able to bear any further loss of blood, it was deemed desirable to have a consultation as to the most efficient measure of relief, even though it might involve ligature of the humeral artery, or removal of the limb. Acting upon the principle above mentioned, I scratched away the clot at the bleeding point, from which a copious stream instantly issued, but arresting this with my thumb, pressure being at the same time made up on the humeral, I dissected a little through the adjacent texture, and brought into view a large artery, under which a double ligature was passed, and tied on both sides of an aperture distinctly visible in its coats. In less time than I have taken to describe the process, the patient was thus transferred from a state of extreme danger to one of perfect safety. The artery was obviously the ulnar, which had come off higher than usual from the humeral, and pursued an irregular course externally to the fascia of the forearm, thus explaining how it had been wounded by the superficial incision, and how it had escaped the deep dissection.

The fourth rule I have to offer is, that when an aneurism forms after the wound of an artery, the same means should be employed as in the first instance, unless the vessel concerned be of a large size, and admits of having a ligature applied to it, without the intervention of any large branch between the seat of obstruction and the wound. The formerly not uncommon case of aneurism at the bend of the arm, as a consequence of the humeral artery being wounded in venesection, affords a good illustration of the advantage resulting from attention to this rule, since relief was thus afforded much more easily, safely, and securely, than by ligature of the humeral farther up the arm.

To illustrate the exception mentioned, I may relate the case of a young man, who, in one of the most remote of the Orkney Islands, accidentally thrust the blade of a knife into the middle of his thigh, so as to wound the femoral artery. The blood gushed forth with great violence, but was restrained by a compress, formed of eight half-crowns, wrapped in a piece of cloth. The wound healed, and an aneurism soon afterwards appearing, he was sent here to my care. Respect for the general principle, and suspicion, from the purring sound, that there was a communication between the artery and vein, suggested considerations which were opposed to ligature of the femoral, but I nevertheless preferred this operation, as the ligature could be applied without the intervention of any considerable branch; and I accordingly performed it, with the happiest result.

The following case will show the danger of not strictly limiting exceptions to the rule within the limits which have been mentioned. A middle aged woman, in a country town, while walking up a steep and slippery ascent, and carrying a knife, with which she had just killed a pig, fell, and thrust the sharp point of the blade completely through her leg, a little below the knee, entering between the tibia and fibula, and issuing at the lower part of the popliteal space. Blood gushed from both openings, but when she was laid in bed ceased, and did not return. At the end of a fortnight, the wounds having healed, she attempted to walk, and found that a swelling had taken place at the seat of injury, on account of which, by the advise of her medical attendant, she came here to be under my care. On examination, I found a large pulsating tumour in the fore part of the leg, immediately below the knee, and another of equal size in the popliteal cavity. Feeling unable to determine whether the anterior or posterior tibial, or the popliteal artery itself, was the vessel wounded, and, on the whole, being inclined to think that the one last mentioned was most probably concerned, in which case ligature of the femoral would be the proper course, I adopted this measure. No bad consequence followed the operation, the tumours ceased to pulsate, and favourable expectations were entertained of the result for two or three weeks, when the anterior wound below the knee opened and bled profusely. I dilated it freely, evacuated the cavity of its fluid and coagulated contents, and applied firm pressure between the tibia and fibula, whence the blood was found to issue. Mortification followed, and I performed amputation, without saving the patient's life. There can be no doubt that, in this case, if the true state of matters could have been ascertained, and a ligature applied to the anterior tibial, which was divided just before it passed through the interosseous ligament, both the limb and life of the patient would have been preserved.—*Monthly Journal of Med. Science, April,* 1851, *p.* 370.

---

70.—*Aneurism of the Radial Artery.* By PROFESSOR SYME.—[In this case, a man of thirty years of age, had at the root of the thumb a tumour about the size of a flattened gooseberry, and stated that the ligature of the artery at the wrist had been recommended as the remedy.]

The swelling looked so much more like a ganglion than an aneurism, that I supposed there must have been a mistake as to its nature; but, upon a more attentive examination, finding that there was a distinct expansive pulsation, I could not doubt that there was a sac communicating with the radial artery, pressure upon which instantly lessened the swelling, and deprived it of the pulsating character. I therefore had a little spring constructed, upon the principle of a rupture truss, so as to press upon the vessel at the wrist, and at the end of twenty-four hours after it had been applied could not detect any trace of pulsation.

I recollect a somewhat similar case, in which a young military officer, from falling on the ice while skating, received a severe blow on the temple, whence resulted a small pulsating tumour, the size of a field-bean. As the disease was so small in extent, and so distinctly limited, I cut through the sac, and tied both of the bleeding orifices. The patient suffered no further trouble either from the operation or the disease.

It may appear inconsistent in me to apply pressure at the wrist, instead of tying the radial artery, as I have strenuously contended against the substitution of pressure for ligature of the femoral artery. But the two cases are very different, since the latter-mentioned vessel has accompanying it the great venous trunk of the limb, which the utmost extent of human skill and care cannot prevent from being compressed along with the artery, and necessarily occasioning a degree of suffering to the patient which must, if at all prolonged, infinitely exceed the trivial disturbance which attends ligature of the artery,—while the radial artery lies directly under the skin, rests upon the bone, and has no associat disposed to resent the effect of compression. I may add, that it has always been an established principle with me, that the radial artery and its branches at and below the wrist are completely under the command of pressure.—*Monthly Journal of Med. Science, April,* 1850, *p.* 370.

---

71.—*On the Method of Making the Incision for the Exposure of Arteries.*—By F. C. Skey, Esq., F.R.S.—I almost invariably adopt an *oblique incision,* and generally at an angle with the artery of 45°, on the following grounds: that in fat subjects it is difficult to ascertain the exact line of the vessel, and that, however true the first incision may be, it does not follow, in the course of a slow and bloody operation, that the same line will be preserved; that if, from accidental circumstances, the precise position of the artery be lost, the operator is equally uncertain whether he is dissecting on the inner or on the outer side of the vessel, or upon it; that, by dividing across the direction of the vessel, he acquires a confidence, from the conviction that the artery is really under his knife; and, lastly, that he makes an external wound, within which the ligature needle is more readily carried round the artery in a fat subject, in which the vessel lies deep, than in a wound parallel to it. The objection to a directly transverse wound is, that the artery is exposed only in a transverse line, and there is nothing gained, but much may be lost. In the femoral, brachial, radial, and ulnar and posterior tibial, I consider the oblique incision to be an important element of success in finding the artery with facility. Take the example of the posterior tibial artery, how preferable is it, to make an external incision over this deeply-seated vessel across the line formed between the muscles that surround it, to the endeavour to hit the exact line, where the deviation of one eighth of an inch would carry the surgeon into the substance of either of two muscles, neither of which he would be able to distinguish from the other! I remember, many years since, to have seen a practised operator totally fail in his attempt to tie the ulnar artery immediately above the wrist, from this difficulty.—*Brit. and For. Med. Chirurg. Review, April,* 1850, *p.* 290.

---

72.—*Exposure of Bleeding Surfaces to the Air, a Means of Arresting Hemorrhage.*—By F. C. Skey, Esq., F.R.S.—In cases of hemorrhage from small vessels, there is, in my experience, no agent at all comparable in its power to arrest bleeding, like rest and exposure to air. Whether it be the act of exposure to the atmosphere, or that the vessels are freed from the contact of parts around, I do not know, but the fact is undoubted. The surgeon who has least fear of hemorrhage loses the least blood. A small wound may be tortured by styptics, and by compression, and by other unprofitable agents, till it becomes the fruitful source of protracted hemorrhage. Masses of lint are piled up in heaps upon the wound, pressure is maintained till all the parties concerned are exhausted, but still the hemorrhage returns or continues, by reason of the irritation caused by the very agents employed, and nothing more. Under these circumstances, which I have repeatedly borne witness to, all dressings should be removed; the wound should be opened and exposed to the air, by its edges being drawn widely asunder, and the bleeding apparently encouraged; its surface freely sponged with cold water, the coagula wiped away, and in this condition it may be fearlessly left to bleed. The cessation of the hemorrhage by such means is often immediate. I was called up at an early hour, many years since, by a medical man, to consult with him on a case of hemorrhage from a tonsil which he had removed in the middle of the previous day from the fauces of a young lady. I directed him to take her to an open window, on the side of the house from which the wind blew, and to require her to keep her mouth wide open. On the following day, I learnt that the bleeding, by this simple expedient, had almost immediately ceased. A gentleman, in a state of intoxication, fell down and cut his head. The wound bled freely from the secondary branches of the temporal artery. This hemorrhage continued from seven till twelve at night. When I saw him, his bed was surrounded by some six persons, medical and domestic. The man had a pile of lint of about three inches in thickness on the wound, and another layer was about to be added to the mass. Contrary almost to the entreaty of the parties engaged, I removed the clotted and saturated lint, and roughly sponged the wound, which I exposed to the air. The bleeding ceased within three minutes. On another occasion, I was sent for in the night to the hospital, to assist in arresting the bleeding from a large wound below the axilla, that had been made on the previous day, by my late colleague Mr. Earle. Three house-surgeons were present and other persons. This man had lost a large quantity of blood by the same ingenious devices as those practised in the above cases. I proposed to remove the lint, and I was answered that its removal would be fatal, such was the tendency to bleed. I ordered the man's bed to be carried to an open window, and removed every appendage from the wound. A large flow of blood followed, and then entirely ceased. I have records of many other similar cases.—*Brit. and For. Med. Chirurg. Review, April,* 1851, *p.* 290.

---

73.—*Varicose Veins cured by the formation of small Eschars.* By F. Skey, Esq., F.R.S.—Any number of eschars may be made on the diseased veins; I have made as many as nine on one leg at a time, selecting for their application the most prominent parts of the disease upon which the eschar is to be made. The size of these eschars, regulated by that of the aperture made in three or four layers of good adhesive plaster, is of great moment. They cannot well be made too small. I formerly cut an opening of the size of a shilling, but this involved the surrounding skin beyond the margin of the vein, and an ulcer of unnecessary magnitude followed, that was difficult to heal; for in all these cases, consequent upon the peculiarity of constitution I have alluded to, the healing action is exceedingly slow. Those that I now employ are less than a fourth part of that size, sometimes but little larger than the diameter of a split-pea, the number of which may be regulated by the extent and complication of the disease. The smallest size is sufficient at once to obliterate the vein. Whatever number be made, the entire operation should be completed at once. The region of the ancle may require two, three, or more, placed over the early branches of the vein. One or two may be applied on the trunk of the vein up the calf, and others below the knee. I have made these eschars also above the knee, but not frequently, not because there is any danger attending it, but because the diseased condition of the vein does not appear to require it. When the places for the application of the caustic have been selected, and the plasters firmly fixed, the ingredients of the paste should be mixed and pasted on the aperture within them. A piece of plaster should be laid over each quantity, and the whole may be removed in from twenty minutes to half an hour. It will then be found that the veins are obliterated, in fact, they have disappeared. Rest in the horizontal posture is desirable, but not essential. In the course of a week or ten days, in a moderately vigorous circulation, the eschars will separate, and the process of healing should then be vigorously pushed, by the aid of bark, wine, good diet, and the local application of adhesive plaster, and stimulants if necessary. Occasionally the ulcers heal very torpidly, and may occupy many weeks.—*Brit. and For. Medico-Chirurg. Review, April,* 1851. *p.* 291.

## 74.—ON THE TREATMENT OF NÆVI AND SMALL VARICES.

By DR. B. G. DARLEY, Physician to the Coolock Dispensary.

[In infants these affections are generally congenital, but they are also met with in children from the ages of six to fourteen or fifteen. In females, when they appear upon the face, they are naturally the cause of much anxiety to parents. Though in growing up children they do not often increase to any large size, nor will they burst and bleed as some species of aneurismal varices do. Dr. Darley proposes a very safe and simple method of removing those met with in growing up children.]

First with regard to infants; the head is very frequently their seat; so are the back and the abdomen; they are often flat, and embrace a considerable portion of skin, which is a purplish colour, with innumerable vessels, filled with blood, running through it. The blood can be squeezed out by pressure, but returns again when the pressure is taken off. I have seen one such as this occupying a considerable space round the umbilicus. Another kind is round and elevated, varying from the size of a small nut to that of a large cherry or walnut; this, from the congeries of contained vessels, gives to the touch the well-known wormy feel. One of the best methods of removing these is by passing threads steeped in a solution of sulphate of copper or of some other caustic astringent through the tumour. I remember one remarkable case of this species being brought to me; the tumour was the size of a moderate Spanish nut, and situated on the head of a child of a few months old. I told the mother that she ought to have it removed by a slight operation, and that if neglected, it would surely end unfavourably; she told me afterwards that her husband would not allow of any operation.

Some months afterwards I met this woman; having previously heard that "the child was cured," I asked to see its head. The tumour was perfectly gone, and the part, though slightly marked, was as flat and smooth as the rest of the skin. After some difficulty I got her to acknowledge that "a charm" had been performed; the charm was this: the child was brought to a house where a man had recently died, and, the dead man's hand was rubbed a certain number of times upon the tumour and after this the tumour gradually disappeared. I did not attempt, as it would have been a difficult undertaking, to persuade the mother that this was not the cause of cure. I mention it, however, partly to show the tendency these tumours have to contract and disappear.

The forms of these tumours which we frequently meet with are situated on the face of young persons; they vary from the size of a pin's point to that of a grain of barley. They are of two kinds, one a small, round, red, isolated tumour, which, when examined through a lens, shows a congeries of vessels running in a tortuous manner, and enveloped in a little cyst; the other, a small tumour, with a number of little vessels running in a stellated manner to it, as to a common centre. The blood can easily be emptied by pressure out of these little vessels.

Mrs. G., consulted me about her little girl, a child of seven years old, who had one of these small varicose tumours under the left eye; the tumour itself is not larger than the head of a pin, but there is a lash of small vessels running in a stellated form to it, so as to give a very remarkable appearance. The mother is very desirous to have it removed, as she thinks it is increasing in size. The operation was performed thus. I first, with a lancet, made a free opening through the centre of the tumour; all the blood in the small vessels, as well as that in the tumour, immediately flowed out. I then, with a pencil of nitrate of silver, cauterised the exposed surface of the tumour strongly, holding the caustic in contact with the tumour for some time. A superficial black eschar was formed, which separated in the course of a week, when the tumour, and all appearance of the small blood-vessels, were gone; and in a very short time there was not only not the slightest depression felt, but not even a mark to be seen. This mode of performing the operation is both safe and expeditious; it does not leave the deep pit I have seen after the operation with caustic potash, as used by some surgeons; and the application of the lunar caustic by itself, without the incision, frequently fails; or, if it succeeds, it is after a great many applications. It has been proposed to insert an acid into these little tumours, by means of capillary tubes, with the view of effecting a cure, I have not seen this latter operation tried; but I shall be satisfied if this *proposed method* of mine will do away with that barbarous plan of taking a piece of flesh out of such an exposed situation as the face, which the operation with the caustic potash inevitably does, and which produces an unpleasant reminiscence of the surgeon and his operation every time that the pit which it has left is observed.—*Dublin Quarterly Journal of Medical Science, Feb.,* 1851, *p.* 50.

*75.—On the Subcutaneous Application of the Ligature for Deep-seated Nævi.* By JOHN ADAMS, Esq., Surgeon to the London Hospital and Lecturer on Anatomy.—[The first object in the cure of nævi, is to save the skin, which covers them, from destruction. Hence the use of the seton, the couching-needle, injections of irritating lotions, the introduction of probes armed with nitrate of silver,—nay even the actual cautery, all employed with the view so to inflame the cells and blood-vessels of the tumour as shall completely obliterate them. But, says Mr. Adams,]

It has suggested itself to me that a ligature might be so employed as to embrace the whole of the disease without compromising in any manner the vitality of the superjacent skin; and the following is the plan I put into operation in a recent case:—

The disease occurred in a child six months old, and was situated on the right cheek, close to the nose and just beneath the eyelid. The tumour was somewhat oval, its long axis vertical, and, although the disease was principally in the subcutaneous vessels, yet the veins of both upper and lower palpebra were somewhat varicose.

I introduced a long needle armed with a ligature, only slightly curved on the flat towards the point, and carried it through the side of the tumour in its long axis, from below upwards; having drawn out the needle on the opposite side, I re-introduced it on the other side of the tumour, at a point on a level with its point of exit, and brought it out opposite the point of its first insertion. If I had now tied the ligature I should have encircled the whole of the tumour, but there would have been great puckering of the skin at the upper and lower edge, whilst the skin on either side would have been free. To obviate this inconvenience, therefore, I cut through the skin above and below, from the point of insertion to the point of exit of the needle, and, having tied the ligature firmly, I endeavoured to strangulate the tumour.

In this case the success was not complete, and I believe the want of success arose from my having, on the fourth day, divided the knot with a pair of scissors, and removed the ligature before the disease was effectually destroyed.

This method of procedure is founded on the assumption, that subcutaneous nævi are supplied by vessels springing from below rather than by those of the skin. This, however, is not always the case, and I am inclined to think that in the instance just related there were many vessels passing into the tumour from the skin.

I am not aware that this mode of applying the ligature has been put in practice before; it is exceedingly simple, and, as it in nowise compromises the vitality of the skin, I think it deserving of a fair trial.

In another case I certainly should allow the ligature to remain, until, by gentle and gradual traction of its ends, which should be left of about two inches in length, it could be made to cut its way through the base of the tumour, thus completely detaching it from its subjacent connexion. —*Med. Times, Feb.* 15, 1851, *p.* 178.

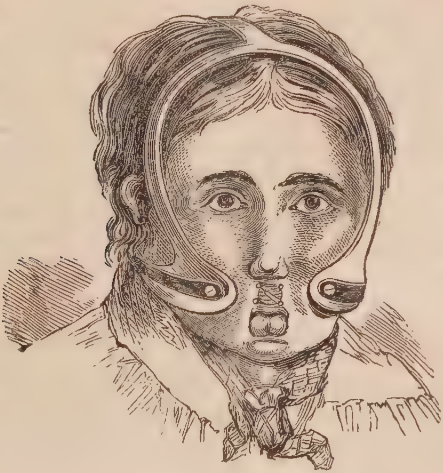
76.—*On the Extirpation of Erectile Tumours by the Cautery.*—In his 'Lectures on General Therapeutics,' DR. DOUGLAS MACLAGAN makes the following remarks: "These erectile tumours, which consist essentially of a congeries of enlarged blood-vessels, are commonly treated by ligature; but this causes a good deal of suffering, and often much constitutional irritation, before the strangulated mass finally separates. The method of applying the cautery is to pass a large red-hot surgical needle, which may be readily heated by a gas-flame, once or twice through the base of the tumour; and the object is to cause effusion of lymph, and thus to alter the structure of the tumour, and to arrest its growth. There are other means of effecting this object; but I mention this as one which, though noticed in surgical works, has not received that attention which I think it deserves."—*London Journal of Medicine, January,* 1851, *p.* 71.

## ALIMENTARY CANAL.

### 77.—OBSERVATIONS ON HARE-LIP.

By W. FERGUSSON, Esq., F.R.S.

[Mr. Fergusson first alludes to the case of a girl with hare-lip in which the operation ordinarily performed for its relief had failed. The father of the child had invented an apparatus which kept the parts together after the operation much more effectually than the means commonly used. Being pleased with the instrument, Mr. F. determined upon trying it.]



The apparatus differs from others in general use, because, instead of drawing the parts towards each other, it, as you readily can perceive, *pushes* them together. On that account it is superior to those ordinarily used, as they generally act by pulling the parts together, and it is difficult, in using them, to keep the pressure from the cicatrix; thus there is an objection to them. The idea of pushing the parts together is excellent. The drawing, by Dr. Westmacott, represents the apparatus applied. The inventor's name is Hainsby, and he lives in Denton-street, Somers-town.

There are instances of hare-lip in which a surgeon will not like to operate in consequence of the great amount of tension which will be exerted upon the edges of the wound, which will almost with certainty burst open again. Now, in such cases, an apparatus of this description, and acting in this manner, will be of essential service. Its great advantage is, that it can be easily borne by a child, whereas, with those ordinarily employed there is great difficulty in getting the patient to bear them on.—*Med. Times*, *Dec.* 21, 1850, *p.* 641.

[MR. ROBERT ANNAN, surgeon, of Kinross, has stated that two similar apparatus to that described by Mr. Fergusson, in the Medical Times for December 21, 1850, have been previously mentioned, one in the London Medical Review, for 1801, extracted from a memoir of Mr. Ollenroth, surgeon; and the other in the Edinbro' Medical and Surgical Journal, of the 1st of July, 1830. The latter are stated to be much more simple though identical in principle with that of Mr. Fergusson. This was brought into notice by Mr. Dewar, of Dumfermline.]

"It occurred to me," says Mr. Dewar, "that, as a very slight degree of pressure on the cheek, on each side, near to the corner of the mouth, relaxes the upper lip, a narrow piece of steel, having a spring, might be so adapted as effectually to answer my purpose. I had, accordingly, a spring made, nearly resembling a pair of sugar-tongs, and so padded as to press on the cheek near the mouth. It was kept in its place by a narrow tape, tied over the chin, and by three tapes which were fastened, one behind, and one on each side, to a piece of leather placed on the crown of the head. This simple contrivance answered every purpose admirably. I could relax the lip by it to any degree I wished, and it could be worn without the smallest inconvenience. The strain was thus taken off the pins, and the process of healing advanced in the most favourable manner."—*Med. Times*, *January* 25, 1851, *p.* 104.

---

78.—*Case of Hare-Lip with a Large Portion of the Superior Maxillary Bone Projecting through the Fissure, Cured by Operation.* By E. A. LLOYD, Esq., Surgeon to St. Bartholomew's Hospital.—[In this case a large portion of the superior maxillary bone is described as projecting "through the cleft of the lip; not perpendicularly in the natural position of the bone, but turned upwards and forwards, and projecting horizontally, in a direction nearly at right angles with the normal position of the teeth." Therefore,] Before uniting the fissure in the lip, it was necessary to get rid of or change the position of the projecting piece of the superior maxillary bone. The practice in this hospital has hitherto been to cut off the projecting part; but this plan leaves a gap in front of the bone which is never filled up, and which remains a deformity for the whole of a patient's life, and interferes materially with the power of articulation.

In order to obviate this inconvenience, it was attempted to push the portion of bone back into its proper place, by keeping continual pressure on it by means of a pad. This plan was tried for several weeks, but it failed entirely. I then determined to forcibly break down the piece of bone with a strong pair of forceps, to bend it into the gap, and leave it to become fixed there. This was easily accomplished, the soft parts having been previously divided. A small compress of lint was placed over the part so as to confine the bone in its new position, and kept in its situation by means of adhesive plaster.

No bad symptom whatever followed this operation, and the piece of bone was easily retained in its new place, and in about a fortnight it became firmly fixed there. By this means the gap in the superior maxillary bone was entirely filled up. The ordinary operation for hare-lip was now performed; viz., the edges of the fissure in the lip were pared, and the two even surfaces were brought together in the usual way with hare-lip pins.

In cases of very young children, I recommend you always to try pressure for some time when the bone is projecting. It may not unfrequently be reduced by that means, and, in proof of this, I could, if it were necessary, adduce many cases.

On no account cut off the projecting piece, for, although the highest authorities have recommended that practice, I feel convinced that it is quite unnecessary, and that by so doing you will render the articulation of the patient imperfect for his whole life-time; and, in many instances, much deformity will result from the falling in of the lip, there being no support for it.

Although, indeed, by the removal of the part, you accomplish your object in one operation, that slight advantage should not be considered, when the patient's comfort for life is at stake.

We frequently see persons who have been operated on for hare-lip, with a small V-shaped cleft remaining at the bottom, when the paired edges have not united. This, I imagine, arises from the parts retracting below the lower needle, and not being kept in contact long enough to enable them to unite. I therefore advise you, in order to obviate this, in all simple cases of hare-lip to make both the raw surfaces of a concave shape; and by this means you will leave a sufficient quantity below the lower needle to allow for a certain degree of retraction, without a gap in the margin being left. This mode of proceeding I have followed in the hospital for many years.

There is another plan which I have also sometimes adopted to prevent a notch remaining in the lower margin of the lip. I leave portions of what I slice from the edges of the fissure attached to the inferior angles of the fissure; turn them down with these raw surfaces opposed to each other, and confine them in that situation. By this proceeding, instead of a notch being left, the central portion of the margin of the lip may be made to project. It is many years since I first had recourse to this proceeding.

Sometimes the edges of the fissure are so far apart that it requires great force to bring them together, and in these cases they will not readily unite. It is, therefore, necessary to separate the parts very freely, and far back on either side; and I have met with cases in which the deficiency of lip has been so great, that there was no possibility of keeping the edges of the fissure sufficiently in contact without making a perpendicular incision on each side of the lip, commencing at the outer side of each of the alæ nasi. By this means, you will always be enabled to bring the edges so easily together that they will readily unite. The incision should not be carried through the membrane of the mouth, but merely through the common integument and muscles. It will sometimes suffice to make an incision on one side only. This cut generally heals readily, and little or no mark remains.

With regard to the age at which this operation is best performed, there has been great difference of opinion; but, as far as my experience goes, (and I have operated as early as three weeks and as late as the twenty-first year,) I do not think, in simple cases, it makes much difference. In the more complicated cases, the operation should always be performed at the earliest period.

I should, however, avoid, as far as possible, the period between six months and two years, because dentition is then going on. As a general rule, I think that the earlier you operate the better; for the most successful case I ever had was in a child, as stated above, only three weeks old.—*Med. Times, February* 1, 1851, *p.* 111.

---

79.—*Observations on Cleft Palate.* By WM. FERGUSSON, Esq., F.R.S.—[Speaking upon the operation for cleft palate, Mr. Fergusson remarks:]

In former days the operation for cleft palate, as practised by Roux and Graëfe, was so unsatisfactory, that some surgeons would not undertake it. I was led by this want of success to investigate the subject with care, and some years ago I brought before the Royal Medico-Chirurgical Society the results of these investigations. By anatomical demonstration, I showed as clearly as could be exhibited, that it was the actions of certain muscular fibres upon the edges of the cleft which prevented the wound from uniting after operation, as they had a tendency to draw the edges apart. It was suggested to my mind that the division of these fibres would materially contribute to the success of the operation. I satisfied myself, and demonstrated to others, that the levator palati was the muscle which had the chief action upon the flaps in this cleft condition of the palate. When these views were first brought forward by me, it was objected, that the action of the tensor palati was not taken sufficiently into account. Mr. Liston was one of those who thought in this manner, until he saw the preparation which I now have in my possession, and on which I dissected the parts in the cleft condition. There are other surgeons now who entertain the notion, that it is the tensor that exerts the chief power in rendering tense the palate, and that the division of this muscle is necessary. But they have been misled by the *name* which has been given to it; and it is a matter of astonishment to me how it is that they entertain this notion, after they have examined the muscles of the palate in the normal condition, and more especially after having inspected them in the cleft state.

In the natural condition, when you come to look at the bellies of the *tensor* and *levator palati*, they appear to be equally strong, but a mere glance at these muscles in the natural state even is sufficient to show that, in reality, the latter has a much more extensive sphere of action than the former, which from its name may be supposed, by those who have not sufficiently examined into the matter, to act strongly in rendering tense the soft parts; but its action is very limited indeed. I do not object to the nomenclature, for what action it does possess is to render the palate tense, but it is much less visible than is that of lifting by the levator, which, indeed, lifts and draws outwards, and particularly so when there is a fissure in the palate and the flaps are loose. I am perfectly satisfied that it is this muscle chiefly which influenced the results of the operations, and caused failure.

Now, there is no theory about these views; the condition has been clearly demonstrated; and, if you examine my preparation before spoken of, you can see the action of the muscles, and can satisfy yourselves beyond a doubt that it is the levator, and not the tensor palati, which acts so strongly, and which it is necessary to divide in order to complete the operation of staphyloraphy.

With respect to the management of the sutures, it is customary to withdraw them in about forty-eight hours, and it was formerly my habit of doing so; but it is not improbable that this early removal may have in some way caused failure in the very few cases which have not succeeded with me. Latterly I have left them in longer, and my own experience of a great number of cases tells me to let the stitches alone so long as they seem to be of any use. In this case, as they appeared to be doing no harm, they were not taken out until the tenth day, when perfect union had taken place at all points except where the lowermost one had given way.—*Med. Times, Dec.* 21, 1850, *p.* 642.

---

80.—*Removal of Nasal Polypi.*—Dr. D. Mc Ruer, of Bangor, Maine, has been in the habit, for some years, of employing the following method for the removal of the gelatinous and soft polypi of the nasal passages.

A piece of catgut is passed from the nostrils to the mouth, to which is fastened a piece of soft and dry sponge, corresponding in size, when firmly compressed, to the narrowest part of the nasal passage; it is then gently drawn forwards by the posterior fauces through the nose, and, in Dr. Mc Ruer's experience of at least ten cases, it has never failed to bring with it all the morbid growths much more effectually and easily than could possibly be accomplished by the old methods of forceps, ligature, &c.—*Trans. of Amer. Med. Assocn.*—*London Journal of Med. Science, March,* 1851, *p.* 267.

## 81.—TEALE'S TRUSSES FOR THE RELIEF OF HERNIA.

[The editor of the 'Medical Gazette,' speaking from cases of his own, makes the following remarks on the trusses suggested by Mr. Teale, surgeon to the Leeds Infirmary, and described in 'Retrospect,' Vol. XXI., page 236.]

Patterns of all kinds of improved trusses have at various times reached us, and we have been repeatedly solicited to give an *á priori* opinion of their value, either from the theory of their construction, or from the casual inspection of a patient who has worn one. Notwithstanding the numerous improved trusses which have been advertised of late years, including the soft pad, the hard pad, the sand pad, the moc-main, the wire truss, and others, we think that most practioners still consider it a matter of great difficulty to make a selection. The remarks which we are about to make will, we hope, remove this difficulty.

In our journal for Feb. 1, 1850, we inserted a communication from Mr. T. P. Teale, surgeon to the Leeds Infirmary. A truss is there described as manufactured by Mr. Eagland, of Bond Street, Leeds; and engravings are also given illustrating the principle of its construction, and its mode of application to inguinal and femoral herniæ. Specimens were at the time sent to us for inspection; but, conformably to the rule we have uniformly adopted, we did not give any recommendatory notice of these trusses, either from the inspection of them, or from the reports of others. Their alleged superiority over other hernial bandages, therefore, rested entirely on the statements contained in Mr. Teale's paper.

One of the trusses was ordered and applied to a patient in a case of femoral herniæ, to which well-constructed trusses of London make had been hitherto applied, but always with the great inconvenience of unequal pressure and the liability to shift, notwithstanding the use of a thigh strap. In this case *Teale's truss* has been worn continuously for *eleven months* without a thigh-strap. The pad has perfectly maintained its position in all the movements of the body, and the spiral spring connected with it has allowed of as much freedom of motion as is compatible with the wearing of any hernial bandage whatever. During a like period, before this truss was worn, a change of the ordinary truss, or some alteration of the pad, was required at least once in three months. The result of the long wearing of Teale's truss in the case of this patient has been most successful and satisfactory; and we consider it a duty, therefore, to state the fact for the information of our readers.

The construction and mode of applying the truss are so well described by Mr. Teale in the paper before alluded to, that only a few remarks are required in this place.

The pad is a light hollow shell of ivory, adapted in shape to the part on which the pressure is to be applied—a plan eminently required in the femoral space, to which neither oval, round, or flat pads can be so adapted as to preserve their position without a thigh-strap, or some other encumbrance, such as increased strength in the spring, thus causing undue pressure. The spiral spring prevents the pad from moving with the girdle, and thus allows great freedom of motion without risk. We have here the art of the mechanic united to the anatomical science of the surgeon; and we feel bound to state that Mr. Teale has not in any respect overrated the value of this truss.

Our readers are no doubt aware that there is a strong *esprit de corps* among surgical mechanicians. Each metropolitan maker has his favourite truss, with duly endorsed testimonials, &c.; all others are ignored, and we doubt whether a provincial maker has the smallest chance of insinuating a good article into metropolitan practice, owing to the combination of the trade against him. We do not know how the matter stands with Mr. Eagland, of Leeds, but we are informed that there is no one in London who makes his trusses, or who will make them, except probably on the disinterested principle of absorbing all the profit. We have made inquiries of one or two makers, and they have said that they "know nothing about it"—or "it is only Coles's patent truss," or it is an article that "a London surgeon would never think of using," &c. &c. &c. Our readers must be fully aware how a good article may thus be kept from their knowledge—literally burked—by this sort of pooh-poohing. How many medical men apply to a maker without having any precise idea of the kind of truss most worthy of selection, and are therefore easily led to select the favourite of the particular shop!

It is with regret we learn that these trusses cannot be procured in London, but only from the maker, Mr. Thomas Eagland, of Bond Street, Leeds. We know nothing of Mr. Eagland, excepting through the paper published by Mr. Teale in this journal; but we have great pleasure in giving, without any knowledge on his part, this strong recommendation of his trusses from our actual observation of their efficiency. We have no doubt that a more extended trial by the profession will confirm this opinion of their value.—*Med. Gazette, January* 3, 1851, *p.* 39.

## 82.—ON INTERNAL STRANGULATION OF THE INTESTINES.

By HENRY HANCOCK, Esq., Surgeon to Charing Cross Hospital.

[Mr. Hancock submits the following cases to the profession, because the post-mortem examinations of these cases so frequently shews the probability of relief from early operation, and he lays great stress upon the great benefit which must arise from all cases of this kind being recorded.

The first case occurred in a gardener, aged fifty-one, who had enjoyed good health previously, with the exception of having had inguinal hernia on the right side, having worn a truss ten years. On the 17th of October, 1850, he strained himself in his abdomen by assisting in raising a tree. The pain from this time gradually subsided, and he felt no more until the 30th of the same month, when he complained of a slight pain in the stomach, which he attributed to his bowels not having been opened for two days; opening medicine was then ordered and the pain was relieved, but on the 2nd of November, his abdomen was found distended and he was in great general pain. An injection of gruel with castor-oil and salt was given, which came away accompanied by small pieces of hardened fæces. All means now used to procure a proper evacuation of the bowels proved useless. His symptoms rapidly became worse, and on the afternoon of the 3rd he is stated to appear to be sinking. No signs of hernia could be discovered and his pain seemed now located above the umbilicus. The symptoms would lead us to the conclusion that an internal strangulation existed, but what its precise nature was, whether intussusception, band, or otherwise, or its exact situation could not be decided.]

Not the least external appearance of hernia was to be discovered; the whole abdomen was distended, but not very painful to the touch in any part; but about three inches above Poupart's ligament, on the right side, Mr. Brown directed my attention to a spot at which an elastic and firm feeling was communicated to the finger, and on consultation it was decided to operate on that point. I therefore carried an incision, beginning rather more than an inch above the anterior superior spinous process of the ilium, continuing it towards the linea alba. The abdominal layers were carefully divided in the same direction; and upon coming down to the fascia transversalis, it appeared to bulge at the spot mentioned, and when this was divided, a bulging of the peritoneum the size of a walnut was discovered; this was laid open, and a knuckle of congested intestine disclosed. I sought the seat of stricture, but it was so high up I could not reach it until I drew the intestine gently down for about two inches, when Mr. Brown detained in that situation, and I was enabled to divide the stricture, which was so firm that we could all distinctly hear its division by the knife. The wound was then brought together, and some brandy and water and opium given to the patient, who, however, died very shortly after the operation.

I was not present at the post-mortem examination, which took place twenty-four hours after death; but I am indebted to Mr. Brown for the following particulars. The intestines contained a considerable quantity of fluid, and were so distended that it was thought necessary to puncture them, and more than three quarts of fluid poured out. The intestines were neither inflamed nor congested, excepting for about four inches, which had been constricted, and which was congested. The constricting band had been completely divided, and no other adhesion or band could be discovered in the course of the intestines, which were perfectly free.

[In the second case the patient had been wheeling some heavy barrows of earth, and whilst warm drank a pint of ale rather quickly, upon which he was seized immediately with severe cramping pains in the abdomen. The same symptoms appeared as in the last case, obstinate constipation, continued vomiting, swelling of the abdomen, and pain referred principally to the umbilicus. If no relief occurred in the symptoms, it was agreed that an operation should be performed: the friends and the patient, however, resolutely opposed this, and three days after the man died from exhaustion. On examination the mischief was found to exist in the right iliac fossa. The appendix vermiformis was turned up, and through the ring thus formed a portion of the ilium had protruded.]

which had prevented the free passage of the contents of the intestine, though not sufficient to produce strangulation or inflammation.]

The anxiety connected with cases of this description is greatly en-enhanced by the uncertainty attending the exact seat of obstruction, from whatever cause it may ensue; the symptoms are frequently so deceitful, the history so meagre. and unsatisfactory, that we have but little to guide us in the selection of locality. It has been stated that a pretty correct opinion may be formed as to the point of mischief, by the constant pain referred to that spot; but this theory is opposed by the first case related, as here the pain was confined to the umbilicus and pit of the stomach, whilst the patient denied its existence over or near to the actual seat of constriction, over which he could bear considerable pressure without suffering; and, indeed, it was only the particular feeling referred to the touch, upon pretty full pressure, that led us to perform the operation where we did. It might fairly be asked, did not the previous existence of hernia give you some clue to the nature of the mischief, and would not that serve as a guide? It might in some instances; but attention was paid particularly to this point. Not the slightest external swelling or projection at the rings could be detected; whilst the man denied that it had been down, and actually scouted the idea of his sufferings being in any way connected with it: and what still more strongly marks the slight dependence to be placed upon the pre-existence of hernia as a guide is, that I was once present at an operation for the relief of internal strangulation; the patient, a woman, had suffered from femoral rupture of the right side for some years, and it was thought that the then existing symptoms might in some measure be connected with it. However, the evidence was so unsatisfactory, that the surgeon determined upon opening the abdomen at the linea alba; it was then discovered that the hernia had nothing at all to do with the matter, but that the obstruction existed on the other side of the abdomen.

Again, the symptoms are so undecided as often to mislead, or, at all events, to increase doubts as to the nature of the mischief. It is an interesting and important fact, that in these cases the constriction shall be sufficient so to interfere with the functions of the part, as sooner or later to destroy life, without at the same time producing any appreciable degree of inflammation; this was the case in both the examples here related, and this accounts for the fact that, although in both instances the abdomen was distended, it was not hard; it could bear pressure; and in both the patients could lie with their legs straight down in bed. Again, the first case proves that we have not always the entire and complete arrest of the passage of the fæces to guide us in our diagnosis, as we find the bowels acted more or less for thirteen days from the occurrence of the strain; and I may here observe, that the passage of fæces must not always be looked upon as an unerring sign of complete freedom from constriction, even in strangulated hernia. A woman was brought into Charing Cross Hospital, having had strangulated femoral hernia of the right side, which had been returned after long-continued pressure by a very intelligent practitioner in the neighbourhood; the constitutional symptoms, however, were unrelieved. I saw her the next morning, and determined that should she not be better in the evening, I would perform an exploring operation. as, upon careful examination, the hernia appeared to have been completely returned; upon visiting her at eight o'clock in the evening, for that purpose, I found her improved, and was told that her bowels had been twice moved, and therefore I concluded all would go on satisfactorily; her bowels were again slightly moved on the following day, but, as she complained of some little uneasiness, a dose of castor oil was ordered. She became rapidly worse, and died from general symptoms of peritonitis in the course of a few hours. The post mortem showed that the hernia, which was very small, had been returned "en masse", but that the sac did not contain the whole calibre of the intestine, but only a portion of its side.

*Remarks.* Notwithstanding the fatal termination of these cases, I have ventured to bring them before the notice of the Society, in the hope that they may be of service in directing attention to the propriety of interfering surgically at a more early period than what usually obtains, and of abstaining from the indiscriminate employment of purgative medicines, which had better be discontinued when sickness sets in, as they materially increase the patient's sufferings, diminish his strength, and lessen the probability of the operation proving successful. And I would again venture to advert to the fact, that patients in these internal constrictions are frequently destroyed by irritation and impeded function, and not by inflammation; that consequently the symptoms are more negative than positive: positive, for the most part, as regards sickness, constipation, and prostration; but negative as regards the swelling, and character of swelling, of the abdomen; the pain; and condition of the pulse, until at an advanced period. And, indeed, from the various cases which I have seen, but which the limits of this paper will not permit me to enter fully upon, I am inclined to believe that, in cases of constriction within the abdomen, the symptoms are seldom so acute and decided as either in strangulated hernia, enteritis, peritonitis, or tuphlo-enteritis.—*London Journal of Medicine, March,* 1851, *p.* 246.

In the report of the discussion on Mr. Hancock's cases of Internal Strangulation, an error was made in the part relating to Mr. GAY's observations, which we are desirous of correcting.

The small intestine was found strangulated on the right side, at least twenty-five inches from its termination in the cœcum, by a ring formed in front by the veriform appendix, and behind by a strong adventitious band: the anterior part of the ring thus constituted had become adherent to the bowel.

*The bowel was simply withdrawn; the constricting tissues were not divided,* as stated in the report. The fœcal accumulation was seen to flow onwards into the lately collapsed and empty gut, and the patient lived 23 hours after the operation.

Mr. Gay believed that the fatal termination which had almost invariably followed operations for internal strangulation, was due, not to the nature of the operation, but to the delay in resorting to it.—*Med. Gazette, Feb.* 7, 1851, *p.* 248.

## 83.—HERNIA—OPERATIONS WITHOUT OPENING THE SAC.

[It may appear somewhat surprising that upon such an apparently simple subject so much controversy, debated at different times, has arisen. The reason of this is, however, that no two cases are found exactly alike, and the surgeon consequently finds that he is compelled to modify his mode of operation and his subsequent plan of treatment according to the singularity or gravity of the different circumstances of the case.]

The point which has been of late, and is now mostly under discussion, is as to the propriety and expediency of performing the operation for strangulated hernia without laying open the sac: other matters connected with the treatment of this affection—such as operating at an early period after strangulation, not using too prolonged taxis, and refraining from the employment of powerful aperients too early after the stricture upon the gut has been relieved—have been satisfactorily settled in the minds of all judicious surgeons; but the one point under consideration is that just mentioned, and it is likely to agitate the minds of practitioners for some time yet, at all events until a larger mass of well-recorded cases of hernia treated by the two separate methods of operating with and without opening the peritoneal cavity shall be brought home to the profession. It must be confessed by all those who have paid any particular attention to this very important subject, that the data are not yet sufficient to justify the surgeon in coming to anything like a correct conclusion as to which is the safest and best mode of operating generally; nevertheless, the researches of Key, Luke, Gay, and Hancock, have contributed much to enlighten the profession on this matter, and the minds of surgeons are thus imbued with the necessity of considering every case of hernia with extreme care before they determine upon the manner in which such and such a case should be treated. The feeling is gaining ground that the operation without opening the sac is applicable to very many cases of strangulated hernia where a few years ago the peritoneum would have been opened without the least consideration, and supposedly as a matter of necessity; that also the danger of the proceeding is much lessened if so delicate and easily inflamed a structure as the peritoneum is not meddled with. Experience has already amply shown the truth of this; but, on the other hand, it cannot be denied that there are many good surgeons who look upon this mode of operating not only with great suspicion, but who consider it to be both unsatisfactory and more dangerous than when the sac is opened, its contents brought into view, and the condition of the parts well ascertained before they are returned into the abdomen. Those who are advocates of the former method urge as arguments in its favour the great danger of peritonitis where the membrane is cut into and the intestine itself is rudely handled—in fact, the circumstance that in almost every case which is fatal after the ordinary operation, a greater or less amount of inflammation of the peritoneum and its consequences is found, and hence the immunity which obtains when a simple incision is made through the overlying textures. Those who oppose this plan urge—and justly too—that it is not applicable to a great number of cases, and that there must always be an extreme difficulty in selecting those to which it really is applicable: moreover, that the peritoneum is not so liable to be inflamed by a simple incision into it as is imagined by some, and that it is impossible to tell at the time of operation whether or not the stricture be fairly relieved, and whether the intestine itself be in a fit state or not to be returned into the belly. Such, then, is the position which this question at present assumes, and is likely to maintain, until the experience of a large number of cases has been fully brought before the profession.

Before proceeding to relate two instances of strangulated hernia where the operation has been successfully performed without opening the sac, we will allude to the report of a case which we inserted from this hospital a few weeks ago. In this instance it will be remembered that the patient was an old man, in whom strangulation of the intestine had existed for less than twenty-four hours, and every thing appeared to be favourable for the operation without opening the sac; and yet, on post-mortem examination, a considerable portion of intestine was found to be in a condition quite unfit to be returned, although the stricture had been effectually relieved by cutting it outside the peritoneum. We at that time made the remark that this very case illustrated the difficulty which must necessarily exist in arriving at a correct conclusion as to the state of the parts inside the hernial sac, and was *per se* an instance to show the danger and inexpediency of returning a portion of intestine which has been constricted even for a short period without first ascertaining its condition. We have now, on the contrary, to relate two instances where the same kind of operation has admirably succeeded, and which thereby tells as arguments in favour of operating without opening the sac, if possible.

Mary Ross, aged forty-eight, married, was admitted into King's College Hospital with a strangulated femoral hernia, on Tuesday, November 26th. She stated that on Monday evening, at eight P. M., whilst sitting before the fire, she was suddenly seized with a severe pain in the lower part of her belly. She at once sent for a medical man, who gave her an emetic which acted violently, and increased the pain under which she was suffering. About eleven o'clock of the morning she was admitted, she first herself noticed a tumour on the right groin, which was very tender to the touch. She had never observed a swelling there before. At two P.M. she was sent into the hospital, *no attempt whatever having been made to return the hernia before admission.* Mr. Fergusson pronounced the tumour to be a femoral hernia: the patient was at once placed under the influence of chloroform, and a careful attempt was made to return the swelling by the taxis; but Mr. Fergusson finding that it did not yield in any way, determined to operate without further delay, making a very short incision over the hernial tumour, he dissected through the separate tissues, and carried the knife inwards, and divided Gimbernat's ligament, outside the sac: the contents were at once returned into the belly; little blood was lost; the edges of the wound were united by sutures; a compress and bandage were applied.

27th.—This patient suffers no pain; has slept well the preceding night, but the bowels have not been opened since the operation.

28th.—Bowels have been opened by means of an enema this morning. The patient feels comfortable.

Dec. 3rd.—Stitches have been taken out of the wound, and this is dressed with adhesive straps.

Discharged on the 7th.

Lydia Boothby, æt. forty-six, married, and mother of eleven children, has had a crural rupture on the right side for the last six years, and has worn a truss for the last twelve months. On the night of December 23d, at ten, she was seized with vomiting and a dragging pain in the stomach, whereupon she attempted to return the tumour with the help of her husband, but found she was unable to do so. These efforts at reduction were continued all night; and as they were unsuccessful, she applied and was admitted into the hospital next day, December 24th. She had vomited fæcal matter before she came in. She had no vomiting when admitted, but complained of a severe dragging pain at the stomach, and shooting pain over the abdomen, There was a tumour, the size of an egg, in the left groin, turning up over Poupart's ligament: it was hard, and felt nodulated at the upper part, but was smooth and fluctuated at the lower. Mr. Fergusson saw the patient, and, finding that he was unable to return the hernia, proceeded to the operation. He first made a very limited incision just over the neck of the tumour, and divided the separate tissues over the sac; he then passed the knife upwards and inwards, and cut the Gimbernat's ligament, and was then enabled to pass the contents of the sac into the belly without opening the sac. It was necessary, however, after dividing the ligament, to cut some fibres between that tissue and the sac: the rupture after this was returned with the greatest facility.

On the same evening this patient found herself much relieved; there was no pain, no tenderness, nor sickness.

On the next day her bowels were freely opened, and the only thing she complained of was a little fever, which required some saline medicine. The wound soon put on a healthy appearance, and she rapidly recovered.

Both these cases are interesting, inasmuch as the same operation was put in force in either, and that, too, with the greatest success, although the two cases were not by any means alike. The comparatively simple and harmless operation without opening the sac was performed, and both patients recovered without a single bad symptom. Both cases illustrate the fact that there are certain instances of strangulated hernia to which this peculiar operation is decidedly applicable; and they teach us what are the circumstances which will lead the surgeon to judge that he is dealing with a fit case for such a mode of procedure. In the first patient the conditions were just those which are considered to be the most favourable for attempting the operation without cutting into the peritoneum. The woman had never suffered from hernia: in fact, it was a quite recent descent of bowel; the parts had not been suffered to remain long down, and, moreover, it was a femoral hernia, which is probably that kind of hernia in which the operation of not opening the sac is most likely to succeed frequently. The anticipations of the surgeon that in such a case the operation might be completed without difficulty were verified. In the second case the same conditions did not obtain; for here the hernia was not recent, but was of six years' standing, and for twelve months the patient had worn a truss; and it might with propriety be expected that some changes would have been brought about in the sac which would oppose a successful attempt at reducing the hernia without an exposure of the cavity. Nevertheless, there was an equal amount of facility in either case in completing the operation. There was also this difference in the two cases—in the one it has been seen that no attempt whatever had been made to return the hernia, either by the patient herself, or by a medical practitioner; in the second instance, both forcible and prolonged attempts were made by the patient and her husband to push the tumour back. The circumstances in each were therefore different, and certainly much more unfavourable in the latter case. Still this rude handling of the parts had not appeared to have produced any mischief. A great point in the success of both cases consisted, doubtlessly, in early recourse to operation,—a measure which should always be adopted whenever it is considered that the employment of the knife is necessary. It must not, however, be considered that in all cases like these just mentioned, and more especially the first, the operation of not opening the sac will invariably succeed or can be accomplished; nor is it to be supposed that the intestine must necessarily be in a fit condition to be returned because strangulation has existed only for a few hours, and because those symptoms which not unfrequently indicate a gangrenous condition of the intestine are not at all perceptible. The case of the man first alluded to shows the impossibility of deciding this question; for, although in this instance strangulation had not existed for twenty-four hours, death rapidly ensued after operation, and the intestine was found in a very disorganized condition; and it is often quite impossible to judge, from the absence of symptoms, as to the comparatively healthy state of the contents of a hernial sac. A few days ago we were present at an operation in a remarkable case of strangulated femoral hernia in a very aged person, where there were not the slightest symptoms to indicate that the intestine was in anything but a healthy condition. The operation without opening the sac was performed. The stricture was fully relieved, but the patient died; and on post mortem examination a considerable portion of intestine was found to be in a semi-gangrenous condition. This uncertainty as to the state of the intestine must then be looked upon as one of the great impediments to, and difficulties in connection with, the adoption of this particular plan of operating. Still it must be hoped that a careful observance of signs and symptoms, and the experience of a greater number of cases than have hitherto been brought forward, may be able to enlighten the surgeon on this serious point, and enable him to avoid the dangers which must necessarily arise if he adopts too hastily or too generally either plan of operating.

Mr. Fergusson has lately adopted a mode of operating by a very small external incision through the skin, just over the neck of the tumour. It was formerly his custom to recommend and practise much freer incisions, of various shapes, over the surface of the tumour; but he now proceeds in a manner somewhat like that recommended by Mr. Gay in his very beautiful work on Femoral Hernia: by means of this incision he is enabled to get easily at the Gimbernat's ligament, which it is generally necessary to divide. Should, however, a large incision be found necessary, it is very easy to extend it over the tumour. Mr. Gay practises his incision, which is even more limited than that of Mr. Fergusson, by the side of the neck of the hernia, and does not interfere with the tumour at all if he can possibly effect his object without it. Mr. Fergusson, in both the cases narrated, made a small cut just over the neck of the hernia, but interfered little with the main portion of it. The advantage is that so small a wound very soon heals up.—*Med. Gazette, January* 24, 1851, *p.* 163.

[In a case related by Dr. Whittle, an infant, exactly five weeks old, was supposed to be suffering from strangulated hernia The symptoms had persisted for sixteen hours: the tumour had appeared suddenly, no fluid could be detected in it; the testicle could be felt at the bottom of the swelling. The taxis having been employed, and having failed, an operation was decided upon.]

Chloroform was administered by putting a few drops on a piece of lint, and holding it before the infant's mouth for two or three minutes. The skin and fascia being carefully divided, the tunica vaginalis was exposed, with a stricture tightly embracing its neck at the abdominal ring: this was divided with a probe-pointed bistoury, after which a slight effort was sufficient to reduce the intestine, which was returned into the abdomen without opening either the tunica vaginalis or the hernial sac. The little patient was relieved for a time, the vomiting ceasing, but the bowels were never opened; and after a few hours the symptoms of strangulation returned, and the child died within twenty-four hours after the operation.

The post mortem examination revealed the cause of the fatal result, which was not strangulation of the intestine by the neck of the sac; on the contrary, the sac merely consisted of a fold of peritoneum which had been carried down the inguinal canal before the knuckle of intestine which had got caught in the ring: the peritoneum about the ring was vascular and deeply coloured, and could be easily pushed into the ring by the pressure of the finger; the strangulated knuckle of intestine lay loose in the cavity of the abdomen, still held tightly in the contracted knuckle-form (which it had acquired in the ring) by little bands of recently deposited soft lymph, stretching across the bent intestine, and effectually preventing its yielding into a longitudinal direction, so as to permit the passage of the fæces.

Now I believe this case might have ended more happily had the sac been opened, and these slight adhesions been broken up by drawing down the intestine a little before it was returned into the cavity of the abdomen. The objection generally urged to operating without opening the sac is, that the neck of the sac is itself very frequently the seat of the stricture; but in this case, the neck of the sac being quite free from stricture, we have a cause of permanent occlusion of the bowel by the deposit of adhesive lymph upon the folds of strangulated intestine within the sac.

The features presented by this case appear to me rather to weigh against the proposal to return the hernia without opening the sac, at least in the case of infants, in whom the effects of inflammation are developed with so much more rapidity than they are in adults. If this question can only be decided by comparing the results of cases, whether they end favourably or not, this contribution from my limited experience will not be without its value.—*Med. Gazette, February* 7, 1851, *p.* 229.

---

## 84.—CASE OF FISTULA IN ANO.

### By Professor Syme.

[Speaking of the treatment of this affection, Mr. Syme says:]

I introduce my left forefinger into the anus, and a probe into the sinus at the small orifice, which is found on the summit of a small warty looking eminence, about two inches from the orifice of the bowel. Directing the probe towards my finger, I feel the internal aperture very little beyond the junction of the skin and mucous membrane. Pushing on the probe, I bring its point outwards into view, and holding it there, with one stroke of the knife divide the textures which it includes, so as to set it free, and effectually accomplish the object of the operation, which is to cut that part of the septum lying between the external and internal openings of the fistula. A piece of lint is then placed in the wound, and the patient sent to bed, requiring no further dressing or care, except what is requisite for the removal of impurities, and with the prospect of being quite well in a few days.

[For the proper limitation of the incision in this case we are indebted to M. Ribes. In reference to this, Professor Syme remarks, in his treatise on Diseases of the Rectum, published in 1838,]

It had been noticed by Sabatier and other good surgeons, that the opening of a complete fistula was generally seated near the orifice of the anus. But in 1820, M. Ribes had the merit of showing that it was always so situated, never exceeding the distance of an inch and a quarter, and often lying considerably nearer the skin. The importance of this observation will appear when it is recollected that the operation requires division of the parts intervening between the two openings of the fistula; since, unless the internal one be sought for in the proper place, it may escape detection, and thus not only occasion an unnecessarily high section of the septum, but, from not being included in the incision, lead to a continuance of the disease. When the internal opening is sought for at the summit of the sinus it cannot be found, so that the fistula is apt to be supposed incomplete or blind external; and M. Ribes, avoiding this error, ascertained that an internal aperture existed much more frequently than had formerly been supposed. He went, indeed, into the opposite extreme, contending that it was present in every case requiring the operation, and accounting for its constancy by attributing the origin of the disease to ulceration of the mucous coat of the gut. But I have already stated that the abscess which gives rise to fistula is very generally discharged outwards in the first instance; and every attentive practitioner must have remarked that an internal orifice is very seldom met with in recently formed fistulas; which facts are quite inconsistent with this theory of M. Ribes.

I have ascertained farther, that, in those cases were an internal aperture does not exist, the mucous membrane at the part in which it would be situated if present, is not only denuded, but rendered so thin that the perception of a probe through it is hardly less distinct than if it had entered the rectum; and that, if the incision extends to this point, the cure will be no less certain than if an opening into the gut had existed.

In regard to the importance of the principles thus established, I may, in the first place, remark, that, limiting the incision within the narrow bounds that have now been mentioned, lessens not only the difficulty of its performance, and the suffering of the patient, but also the risk of hemorrhage, and the trouble of after treatment; since instead of having to keep separate the edges of a deep and not easily accessible wound, the surgeon has merely to prevent adhesion between the lips of a superficial cut. But the operation, while thus simplified in its performance, is also rendered more certain in its effect, since in cases of complete fistula the most extensive incisions will fail to afford permanent relief, unless they include the internal opening. I have very frequently operated on complete fistulas that had been looked upon as blind external, from the internal orifices having escaped detection through unaquaintance with its position; and the repetition of operations for the disease, which are so frequently heard of in practice, are no doubt referable to this mistake.

In the reports of surgical cases which I have published from time to time since the year 1829, and also in the systematic work on Surgery, of which the first edition appeared in 1831, I have endeavoured to explain and impress these principles which have been uniformly acted on in my own practice. They are still, however, far from being generally adopted, and many writers of the highest authority continue to inculcate the practice of Mr. Pott. Sir A. Cooper says, "If the fistula does not open into the intestine, you must pass the instrument (a bistoury) up the sinus till it reaches the extremity."—"A very copious hemorrhage generally follows the division of the septum," &c.* Mr. Copeland says, "In this operation though there are no vessels of very considerable size in danger of being wounded, yet, when the sinus extends far up the side of the gut, a hemorrhage now and then takes place, either at the time of the operation, but more usually a few hours after it, which, if it be not important from the magnitude of the divided artery, becomes often so from the difficulty, perhaps impossibility, of securing it by a needle and ligature."—"I will venture to say, that it (hemorrhage) has occurred to almost every surgeon who is in the habit of performing the operation."—"After many unsuccessful attempts to secure a bleeding vessel under such circumstances, I once accomplished it by introducing a blunt gorget into the rectum; and, by keeping the gut thus dilated, I was enabled to see the orifice of the bleeding artery and to secure it." † Mr. Liston says, "Some contend that fistulæ are always complete, that they commence from within, and that the internal opening is always at one particular point; but such, according to my experience, is very far from being the case."—"Having reached the extreme depth of the canal, the direction of the instrument's point is changed, so as to apply its cutting surface to the coats of the bowel at that part." *

---

* "Surgical Lectures, p. 425. 1837."

† "On Diseases of the Rectum and Anus, pp. 159-161. 3rd edition."

In the second edition of my treatise I added the following passage:—

"Having so long contended in favour of the almost constant presence and fixed position of the internal orifice, I am happy to observe that Sir B. Brodie now advocates the same doctrine.

"The first thing to be done is to find the inner opening. I do not say that you will always succeed in finding it,—certainly not the first time, but you will rarely fail if you look for it in the right place. Formerly, I often failed, and for this reason,—I did not know where to look for it. I used to think that it was to be found in the upper part of the sinus, but it is never found there if the sinus runs high up. You must search for it immediately above the sphincter muscle."†

Having thus long and earnestly contended for the proper treatment of fistula, founded upon its true pathology, and endeavoured to bestow the credit of establishing this where it was justly due, I read yesterday, with what feelings of surprise you may imagine, the following statement of a clinical lecture, delivered by Dr. Hughes, surgeon to the Jervis' Street Hospital, and published in the 'Dublin Medical Press' of 20th Nov. last.

"Till a comparatively recent date, writers who were received as the best authorities on the subject of fistula in ano, have recorded their opinion, that the external blind fistula was the most common form of the disease; however, one of the highest modern pathologists—I mean Sir B. Brodie—has, from extensive investigations on both the living and dead, arrived at the conclusion, that the complete fistula in ano is the most frequent form of the disease; indeed, Sir Benjamin Brodie is so impressed with the fact, that he states that there are very few cases, if any, in which the fistula does not communicate with the gut internally; and he insists, that if the surgeon will only look for the internal opening in the proper place, that he shall surely find it; and he asserts that although the action of the sphincter and levator ani muscle may interfere with the healing in of an abscess in connection with the rectum, yet he principally ascribes its non-healing to the constant presence of this internal opening, and to the continued irritation kept up by the infiltration of the contents of the bowel, whether feculent or gaseous, into the cavity of the abscess.

"When this announcement was first made, it startled the profession not a little, emanating, as it did, from one of the highest authorities in Europe, and which, if established, would throw considerable light, not only on the pathology, but also on the treatment of fistula in ano; however, there are many excellent surgeons who still question the invariable presence of the internal opening in fistula in ano. The subject is one of deep interest, and in my mind can only be settled by an extensive series of post-mortem examinations. I, therefore, wish to speak cautiously on the subject; still I hope

---

* 'Elements of Surgery, vol. iii pp. 70-82.

† "Lancet, 26th January, 1844, p. 533."

I may, without committing myself, say, that I suspect cases have been considered as blind external ones which were really of the complete form, and I am convinced that such mistakes can satisfactorily account for the occasional failure of operations for fistula in ano. I, therefore, am of opinion, that the profession is much indebted to Sir B. Brodie for having directed their attention to the frequency of the internal opening in fistula in ano."—*Monthly Journal of Med. Science, February,* 1851, *p.* 174.

---

85.—*Remarks on Fistula in Ano.* By BRANSBY B. COOPER, Esq., F.R.S.—[In a case upon which the following remarks were made, the fistula did not appear to perforate the rectum. Although Mr. Cooper thought this might be correct, yet, that if so, it was an extremely rare occurrence, and that it was pathologically probable that there was a communication, although it was not discoverable with the probe; for he says:]

In nearly every instance does the disease begin in the rectum and proceed downwards, arising from some disordered state of that viscus, or perhaps of the viscera above; and when an abscess has once formed in connexion with the rectum, the parts around are kept in a constant state of irritation from the escape of gas or fæces. I repeat, it is an extremely rare circumstance for an abscess to arise externally to the bowel, and ulcerate through it, although I do not deny that this may, and does sometimes happen. Surgeons usually in these cases of fistula in ano, search about with a probe, and endeavour to find the communication with the rectum, or to ascertain the extent of the fissure. To me, however, this is a matter of very little importance and consideration; for, whether the fistula does or does not communicate with the gut, or whatever its extent, the treatment or course to be adopted is the same, namely, to divide the fibres of the sphincter ani muscle, and thus allow the parts, which were previously under the constant influence of muscular action, to remain as much at rest as possible.

The operation itself is a very simple one, and only requires the exercise of a little moderate care and attention. I usually place the patient on his hands and knees in bed, or else kneeling across the back of a chair, so as to obtain a full view and exposure of the affected part; then passing a director through the fistula as far as the bowel, and along this a probe-pointed bistoury, I withdraw the director, and take hold of the bistoury with either the right or the left hand, according to the side of the anus on which I am operating; next, introducing the index finger of the other hand into the rectum, and feeling for the point of the bistoury, I press the two together, and in that position withdraw them, cutting through rectum, sphincter, and all the intermediate parts. It is not requisite or necessary to pass the bistoury to the extreme extent of the fistula, on the contrary, the division of the sphincter fibres is sufficient to promote the healing of the whole fistula. And, again, whatever number of fistulæ there may be, the operation on one will effect the cure of all. I have just one or two more remarks to make, in completing this subject, which are of much importance, in ensuring a successful result from the operation. The division of the sphincter should be in a direction straight across it, and not too much towards the os coccygis, or some of the fibres will remain undivided and the operation incomplete. And in the female, the division must not be directed towards the vagina, or the opposed surfaces of the wound will be constantly subjected to the action of the muscular apparatus of this organ, and will not unite or heal. Should you ever meet with a fistula between the vagina and the rectum, I, by all means recommend you to leave it alone; for, if you operate on it, the wound you occasion will never heal, and your patient for ever afterwards be unable to retain her fæces. If you like, however, to make an incision, and divide the sphincter ani away from the fistula, I think you may, in some cases, be successful in effecting a cure, by removing the exciting influence of this muscle. At all events it is worth a trial.—*Medical Times, Jan.* 18, 1851, *p.* 57.

## 86.—NON-UNION AFTER OPERATION FOR FISTULA IN ANO, OCCURRING PRIOR TO ADMISSION INTO GUY'S HOSPITAL.

[In this case the patient had suffered from fistula for six months past; is a stout, flabby, and somewhat unhealthy looking young man, but states having enjoyed good health hitherto. Six months since an abscess appeared in the perineum, which gradually increased to the size of an egg, when it was opened and three ounces of exceedingly offensive pus was evacuated. The fistulous opening never properly healed; neither have the margins of the wound united.]

On examining the part, the anterior portion of the sphincter and rectum had been divided in a direction directly forwards towards the perineum, and still remains so, but little, if any, union having taken place between the divided edges. There are also two fistulous sinuses,—one extending on either side of, and nearly around, the anus; whilst the other passes for some distance towards the rectum, where the probe can be distinctly felt through the mucous membrane.—He was ordered castor oil mixture twice a day, which acted freely on the bowels.

Mr. Hilton examined the rectum with his speculum ani, but was unable to discover any evidence of a communication between the external opening and the rectum, either by means of the probe, or by injecting water with a syringe through the external aperture—most, if not all, of which returned by the same orifice. On December 10th the operation was performed by introducing a grooved director, and first dividing, by means of the sharp-pointed bistoury, that part of the fistula running up by the side of, though, as far as could be ascertained, not communicating with, the rectum; after which, the fistulous canal running around the anus under the integument was treated in a similar manner. Oiled lint was now placed between the edges of the wound, and the patient was ordered to keep perfectly quiet in the recumbent posture.

11th.—He felt very comfortable; his bowels had not been moved, and there was no evidence of any constitutional disturbance.

12th.—The bowels have been moved, but without causing him much pain.

14th.—The wound discharges but little, is granulating slowly, and seems disposed to heal up from the bottom.—Ordered potassæ bicarbonatis, ʒss.; infusi cascarillæ, ℥j. ter die. Nitric acid lotion to be applied to the granulating surface in order to stimulate it slightly.

16th.—There is not so much discharge as previously, and the fistula is filling up as favourably as can be expected.

24th.—The divided parts are decidedly uniting, and he expresses himself as feeling much better. From this time he continued daily improving up to Dec. 30th, when his furlough being expired, he was compelled to leave the hospital to return to his regiment. The wound at this date had healed considerably, and there seemed every probability of the operation being attended with success.

In this case you will observe that the fistula was situated in front of the anus, and between it and the scrotum. The patient had undergone one operation for laying open the canal prior to his admission, the result of which was unfortunate, no union having followed,—an event happily not of very frequent occurrence. The termination, however, suggests to us one important fact—viz., never to perform the operation without having previously ascertained whether there are any other co-existing diseases which may interfere with its success; and on investigating the different causes of these cases of non-union, they may be divided into the local and constitutional. On the present occasion, we shall only advert to the local; but do not forget that non-union after the operation for fistula in ano is frequently associated with disease of the hepatic and pulmonary organs. Of the local causes, a communication with the urethra may be mentioned amongst one of the first. This is a complication of the greatest importance to investigate and make out prior to performing an operation. Many cases have come under my notice in which the operation for fistula in ano has failed for want of this precaution being duly attended to One case came under my care in which a communication of this sort existed, —the result of an ulceration in the urethra behind a stricture: the complication had not been suspected, and the perinæum had been divided into the rectum, so as to lay open the fistulous track, the consequence of which was that no union followed, and the patient could never retain his fæces after; but by passing the catheter, and keeping one constantly in his bladder, the opening in the urethra was closed, and the patient so far recovered.

Another case of this kind came under my care last May, where the fistulous opening communicated both with the urethra and the rectum: having made this out, I declined performing any operation, but recommended he should keep on his back,and that a catheter should be kept constantly in the bladder, so that urine should never be passed excepting through the catheter. My patient persevered in this plan of treatment, but was unable to keep the catheter in his bladder, in consequence of the irritation caused by it. The frequent introduction of the instrument has been attended with decided benefit; notwithstanding, there is every reason to believe that he is the subject of phthisis,—yet, on hearing from him a few days since, he says he is much better in every respect, although a few drops of urine occasionally escape through the opening in the perinæum, which is of a pin-hole size, and some urine still passes into the rectum at each period of micturition.

The non-union in the case of the soldier did not depend either on any communication with the urethra or on any pulmonic complication, as indicated by the absence of all symptoms of these organs being affected, when taken in conjunction with the patient's previous history; whilst the healthy state of his chest was ascertained by a stethoscopic examination. The non-union, however, appears probably to have been the result of a too extensive division of the perineum into the rectum at the first operation. Such an extensive division of soft parts it is important if possible to avoid, in order to prevent an unpleasant termination, like that in the present case. If the fistula extends high up into the rectum say, for instance, three inches—I would not advise you to divide the entire extent of the canal, but to operate on a smaller scale, —that is to say, after passing a director along the sinus, to divide that portion of the canal lying external to the curve of the sphincter muscle; after which the remainder of the track will most probably heal up of its own accord; but if, on the other hand, the fistula does not extend more than an inch and a half up the rectum, the whole extent may be divided without any fear of such an untoward result. This extensive division is not generally considered a cause of failure in these operations. I am fully persuaded, however, that it occasionally is so; and it seems to be a very probable explanation of the soldier's case,—an opinion which is confirmed by the present condition of the parts. Another case of non-union is when several small fistulæ communicate with each other. In the present case there were two, both of which which were laid open during the last operation; although, when these are quite superficial, the injection of a solution of nitrate of silver, black wash, or sulphate of zinc, will often be found sufficient to heal them. I am unable to complete the case, as the final result is unknown. It is, however, one of great practical interest, from suggesting some important considerations in reference to the operation, tending to show us one cause of failure, as well as how the treatment must be modified by existing circumstances; especially by the length of the fistula, and its depth in the soft parts about the rectum.

[The second case of fistula in ano occurred in a patient of a robust and plethoric habit. He was a shoemaker of temperate habits, and had enjoyed general good health.]

About fifteen years since, he became the subject of fistula in ano, for which he underwent an operation; and the fistula is said to have healed up, but there is no evidence of a cicatrix. From that time he has experienced an occasional aching pain around the anus, especially after going to stool. About three months since he first noticed a swelling in what he considered to be the position of the former fistula. This gradually increased in size, and gave rise to some amount of constitutional disturbance until five weeks since, when it opened of its own accord, and discharged an exceedingly offensive purulent matter; since which it has remained open, and continued discharging up to the period of admission; but, so far as he can judge, neither gas nor feculent matter have ever passed through the fistula. Ten days ago, another swelling formed on the opposite buttock, which burst about four or five days after, discharged very freely at the time, and then gradually it healed up. On examination, there is a fistulous opening on the left side of the anus, distant about one inch from it, along which a probe can be passed for some distance, though not into the rectum; and after repeated attempts it was found impossible to ascertain, by means of the probe, whether the fistula did or did not communicate with the rectum: this difficulty as regards diagnosis was overcome by injecting water somewhat forcibly into the external opening, the speculum ani having been previously introduced up the rectum, when, by carefully examining the walls of the rectum through the deficient portion of the instrument as it was turned round, water was at length observed to pass into the posterior part of the rectum, through a very small aperture, which, by the aid of the speculum, was rendered distinctly visible. The patient is quite free from inconvenience during defecation, but complains of an aching pain around the anus afterwards, as also of general weakness and pains in his loins. His bowels are habitually constipated. Appetite very good; sleeps well; there is no evidence of phthisis or any other disease.

20th. He was ordered to keep in bed in the recumbent posture, and to take castor oil mixture twice a-day.

26th.—The fistula still discharges freely. His bowels are kept open every day.—*Ordered* a full dose of castor oil to-morrow morning, so as to clear out the bowels effectually prior to the operation.

27th. The patient having been drawn to the edge of the bed, where he was placed upon his back, with his pelvis well raised, Mr. Hilton proceeded to lay open the fistula into the rectum, as follows:—The speculum ani was first introduced up the rectum, with the slide opposite to the internal opening; a grooved director was then passed through the external opening as far as it would proceed along the fistula, and a grooved probe, bent at an acute angle for the purpose, was introduced into the internal opening by the aid of the speculum, and directed downwards and outwards until the two instruments were close to each other. By means of a sharp pointed bistoury, which was passed along the groove in the director, the soft parts, including the sphincter muscle, were divided, and the lower part of the fistula was laid open: the extremities of the two probes were thus exposed, when the upper portion of the fistula was observed to extend off in an angular manner, though perfectly continuous with the lower half of the fistulous canal. The upper portion was then divided with the bistoury from above to below, thus completing the division of all the soft parts between the two outlets. The upper part of the fistula formed a very narrow canal, the walls of which were distinctly visible after the operation by the aid of the speculum, and yielded a sensation of thickness and hardness to the touch, as if of a cartilaginous character. A piece of lint was placed between the edges of the wound, and a cold sponge was applied externally: there was no important hemorrhage after the operation. The patient lay down in his bed, and was ordered to keep perfectly quiet.

28th.—The patient has slept well during the night, and feels very comfortable.

30th.—He was suffering considerable febrile disturbance: tongue furred, hot skin, quick pulse, and felt very thirsty. There was no evidence of any shivering, and the wound looked tolerably healthy. On the right side of the anus there is a red spot, as if a small abscess was forming, but at present there is no evidence of suppuration.—He was ordered poultice to the part, to keep in the recumbent position, and take a dose of castor oil. These symptoms, however, quickly passed off, and all trace of the superficial abscess disappeared. The wound healed up by granulations of a healthy character. He continued to do well in every other respect; so that, on January 11th, he was enabled to leave the hospital cured.

This patient was operated on for fistula about fifteen years ago, and states that he has always been subject to occasional pain and uneasiness about the rectum from that time. Judging from this, as well as from the thickened condition of the walls in the upper portion of the fistulous sinus,—evidently showing that that part was not of recent date,—I am disposed to think that the fistula was not completely divided at the first operation; thus accounting for his uncomfortable sensations in the neighbourhood of the rectum since that time. When the abscess was opened, it has been already stated that the discharge was of a very offensive character; and I would wish you to bear in mind that this is generally the case when an abscess forms in any situation near the intestinal walls. This highly offensive character of the pus, so commonly observed in these cases, is no proof whatever that the abscess communicates with the rectum, even although it should have a decidedly feculent smell, or if gas should escape when an opening is made into the abscess externally. Pathological anatomy teaches us beyond all doubt that it may acquire this peculiar odour from its situation alone, especially when near to the cæcum or colon, or rectum: this fact I have proved by frequent dissections made for the special purpose of ascertaining whether any communication existed between the abscess and the intestinal canal. It appears to depend on the imbibition, or rather on the passage of those gases common to the intestines, through the delicate wall of the gut, according to the law of endosmose and exosmose: the gas being once in the abscess, acts upon the pus globules, and thus engenders a continuous process of decomposition, which ultimately leads to a highly fetid condition of the pus, and the formation of more gases. The knowledge that an abscess does not necessarily communicate with the intestines, even although the fœtor of its contents would seem to indicate it, is a fact which may frequently prove a source of congratulation to yourself, as well as of satisfaction to your patient, especially when the abscess is in the lumbar or iliac regions.

The indications for treatment in these cases are to keep the patient in the recumbent posture for two or three days prior to the operation, the chief object being to get the parts in a more healthy condition, as not unfrequently, either from the irritation caused by standing or walking, the parts become hot, swollen, and somewhat inflamed; and if the operation were performed at once, without a due consideration of these circumstances, the chances of success would be very much diminished. This I am particularly anxious to impress upon your minds, as you will find it contribute materially to your success in practice. Oleaginous purgatives should be exhibited for two or three days previously, and a full dose of castor oil on the morning of the intended operation, so as thoroughly to evacuate the bowels, and thus to do away with the necessity of an evacuation for several days afterwards. The next thing to be done is to divide the sphincter and soft parts into the rectum, and so to lay open the fistulous track: whether this should be done through its entire extent would, as has been previously stated, depend on the length of the canal.

On applying our remarks to the case now under consideration, we observe that the external opening was distant about one inch from the anal aperture; and the first thing to be done was to endeavour to pass a probe from one aperture to the other,—that is, from the external opening through the fistulous canal into the rectum, so as to make certain whether the fistula did or did not communicate with the rectum: this could not be accomplished; and it did not at first seem improbable that the case was merely one of blind external fistula, having no communication whatever with the rectum; whilst several points in his history – especially his never having passed any gas or fæces through the fistula—seemed to favour such an opinion: but did this justify us in arriving at a conclusion that no communication existed between the fistula and the rectum?—Certainly not: the passage of fæces might easily have been prevented by the character and direction of the internal opening. All doubt, however, on this point was speedily cleared up by injecting water with a syringe into the external opening, care being taken at the time to prevent it from returning immediately by the same orifice: by these means the existence of the opening into the rectum was easily detected, and, by the aid of the speculum, its exact position, small size, and peculiar character, were rendered distinctly visible. The injection of water is a test by which you can at the same time determine whether more than one opening exists in the gut. In the present case there was only one opening, through which the water quickly passed,—demonstrating all that was required, without causing any pain to the patient; clearly showing its advantages over the probe, which will not unfrequently be found to fail. The cause of failure with the probe in the present instance was quite apparent after the operation, and depended on the canal taking an irregular course; the upper portion appearing, as it were, to branch off at a right angle from the lower.

The internal opening of the fistula in this case was in that position where it is most frequently met with,—viz. about one inch above the internal sphincter: this was pointed out by Ribes and others, and has been more recently confirmed by surgeons of this country. Its exact position can now be more easily made out by means of the speculum, and injecting water into the external opening. If you cannot see in what part of the rectum the water first makes its appearance, which sometimes occurs in consequence of the translucency of the water, some coloured liquid should be substituted for it, when the escape through the internal opening will be immediately observed. But even after we had discovered the exact position of the two openings in this case, and proved that they communicated, as shown by the passage of the water, still it was impossible to pass a probe from the one to the other; and the question then arose—What should be done? as it was important for the success of the operation that the entire length of the fistula should be divided. This difficulty was overcome by passing a director through the external opening, and up the canal as high as it would go; when a probe previously curved on purpose nearly to an acute angle, was introduced through the internal opening, which was rendered visible by the speculum, and passed down the fistula until it came nearly in contact with the director: the probe was then steadied by the hand of an assistant, and the sphincter and soft parts between the lower part of the canal and the rectum were divided, immediately after which the upper or intestinal portion, which was quite superficial, and occupied by the grooved probe, was served in a similar manner. The walls of the fistula near its upper and lower openings were quite of a different character, those on the upper half being thick, hard, and almost cartilaginous, and lined by a thin, delicate, smooth, pseudo-mucous membrane; whilst those of the lower half were thinner, evidently of more recent date, and the lining membrane presented a minutely granular appearance.

If the fistula does not happen to extend deeper than one inch and a half up the rectum, you should always endeavour to divide its entire length, especially the intestinal end of it,—otherwise, in many cases, it remains open; and, when the rest of the sinus has healed, it allows a small quantity of feculent matter to enter, which becomes a source of irritation, leads to the formation of another abscess, and subsequently to another fistula; so that, unless this is discovered and laid open, you will not place the patient in a condition to expect a favourable termination, and at the same time deprive yourself of the conscientious satisfaction of knowing that you have done your duty towards him.

After the operation, provided there be no hæmorrhage, you may withdraw the speculum: a small piece of oiled lint should then be inserted between the edges of the wound, so as to cause the parts to heal up from the bottom by granulation. This was done in the case related. The patient is now nearly recovered, and there is every reason to believe that he will continue well, without any return of the fistula.

The intention of the operation for fistula in ano in dividing the sphincter is to allow the inner wall of the fistula to come in contact with the outer,—a circumstance which the sphincter, when entire, always tends to prevent. Within a short time after their approximation, the two walls granulate and become adherent, whilst the sphincter is subsequently repaired by the white fibrous tissue. If the precaution is not taken to introduce a piece of lint, the divided edges of the wound will be likely to unite by adhesion, without the fistula having become obliterated. Prior to performing this operation, I would always advise you to examine the rectum carefully, to ascertain if any large artery lies in your intended line of incision. Such a discovery as this would alter your method of operation, so as to avoid wounding it, if possible; and, in concluding my remarks on this operation, I am anxious to impress upon your memory that, although, in most cases, you should endeavour to lay open the entire extent of the fistula, by cutting through all the soft parts between the two openings, still that, under occasional circumstances, certain modifications in the operation must be adopted: and the two conditions in which these modifications are especially called for are—1st. When the fistula extends high up into the rectum: by dividing its entire length you will run the risk of dangerous hemorrhage at the time, and of subsequent non-union. Under these circumstances you must be satisfied with dividing the sphincter and lower part of the fistula, after which the upper portion will most probably heal up of itself. The second condition under which the operation must be modified is when the fistula has a very extensive track in the soft parts external to the anus: thus, for instance, extending forwards towards the perineum, or laterally towards the buttocks; whilst its intestinal opening will, in all probability, be only just above the sphincter ani. Under these circumstances, do not divide the whole length of the sinus; but, having passed your director through the canal, as in the ordinary operation, cut into the director external to the sphincter, divide it and the intestinal end of the fistula, after which the remainder of the fistulous track—that is to say, the external portion which has not been laid open—will most probably heal up. In case, however, it should not do so, some stimulating injection—as black wash, nitrate of silver, or sulphate of zinc, in solution—may be thrown into it, for the purpose of favouring the process of granulation or adhesion. I have performed this modification of the usual operation in two cases: in one it was attended with speedy and complete success: the second case I lost sight of too soon to enable me to express a decided opinion; but, so long as I had an opportunity of observing it, it promised to do well. Some difference of opinion prevails respecting the primary cause of fistula in ano: it is the opinion with some surgeons that it originates primarily in an ulcer in the mucous membrane of the rectum, leading to inflammation and abscess external to the mucous membrane, which soon after opens into the intestine; and this permits the entrance of fæcal matter into the abscess: this again gives rise to the formation of another abscess, which burrows down in the cellular tissue external to the rectum, and at last leads to the completion of fistula. But it does not appear to me that this is the correct explanation of the primary cause, inasmuch as facts, and analogy between this disease and diseases occurring in other parts similarly situated, do not tend to this conclusion. In the first place, we know that persons are very frequently the subjects of ulcer in the rectum without its ever being followed by abscess, and that the ulcer may exist for months without giving rise to it; whilst the co-existence of abscess with ulcer of the rectum is a very rare occurrence. These facts are all important as a negative evidence, tending to show that this is not the primary cause. But there is another light in which it must be regarded: the internal aperture of the fistula is in general, if not always, exceedingly small. Now if the original cause was an ulcer in the mucous membrane of the rectum, it is not at all likely that the internal opening would be about the size of a pin's head, or perhaps double that size. Another argument is, that we cannot discover any analogy between this supposed cause of fistula and ulcers occurring in other parts of the body similarly situated. Thus, for instance, an ulcer in the nose is not followed by abscess in the walls of the nose; neither is an ulcer in the pharynx followed by abscess in that part. The same remark holds good when applied to the urethra: an ulcer in the urethra is not followed by abscess near its walls, unless extravasation of urine takes place previously. Indeed, there is no canal in the body in which a precisely analogous and supposed condition is observed. Again, that kind of fistula generally called the blind external fistula—viz., when no communication exists between it and the rectum—is a variety of the disease itself, tending strongly to disprove this idea: so that, judging from these facts, I think we may safely infer that an ulcer is not necessarily the primary cause of the abscess near the rectum which gives rise to fistula; and that, when the two exist at the same time, it must be regarded rather as a coincidence than that they bear a direct relation to each other. The more probable cause of fistula, perhaps, stands in some relation to an inflammatory condition of the walls of the hæmorrhoidal veins, owing to the circulation through them having been retarded for many hours, produced by standing, or by sitting for a long time on a hard seat, or by riding on horseback, or, as I have known it to occur, from sitting on the damp ground. —*Med. Gazette, February* 7, 1851, *p.* 222.

## 87.—CONGENITAL ABSCESS OF THE RECTUM.

(Under the care of Mr. Erichsen.)

[Imperforate anus, absence of the rectum, and other imperfections are now so well understood that it has hardly been deemed necessary to warn accoucheurs as to the necessity of examining infants with respect to these malformations, before they are consigned to the exclusive care of the nurse. With regard to affections of the anus,]

Amussat's classification is so simple and practical that it can easily be borne in mind. He makes but five divisions. 1. The anus preternaturally narrowed. 2. Anus closed by a membrane. 3. Rectum intercepted by a single septum. 4. Anus imperforate, (the most common.) 5. Rectum opening into some other organ.[*] To these might be added:— 6. Rectum ending in a pouch very high up; and 7. Total absence of the rectum.

[A case of the latter recently occurred under Mr. Erichsen, who has had frequent opportunities of operating for such malformations. From Mr. Watkin Williams' notes, house surgeon to the hospital, we gather the following facts:]

A male child, aged eighty hours, was brought to the hospital, the nurse having observed that it passed no motions, and had no aperture at the anus. The little patient, on being examined, was found to be a very small child; a raphè extended along the median line of the perinæum, and there was no aperture whatsoever on the site of the usual orifice of the anus, nor could any bulging or fluctuation be felt.

---

[*] Of this malformation the following is a very extraordinary instance:—The termination of the rectum was closed, but to it was attached an appendix which ran over the prostate gland along the urethra, and opened by a small aperture at the side of the frænum præputii. The child was saved by an opening being made in the usual locality of the anal orifice. (Collezione d'osserv. et rifl. di Chirurg. t. i. p. 18, Roma. Anno 6.)

As the child was already eighty hours old, Mr. Erichsen lost no time, but at once proceeded to operate. The infant having been placed in the position for the operation of lithotomy, Mr. Erichsen made an incision of an inch in length, terminating posteriorly at the end of the coccyx; the finger was introduced through the wound but no bowel could be felt. The incision was then cautiously carried to the depth of an inch and a half in the median line, Mr. Erichsen taking the curve of the sacrum and coccyx for his guide. The bowel was now felt on a level with the brim of the pelvis, and carefully opened into, when a quantity of dark, thick meconium and flatus escaped. The opening in the bowel was then enlarged with a probe-pointed bistoury, and a plug of wood, wrapped with lint, introduced into the wound, in order to arrest the rather free oozing of blood from the cut surfaces. This plug was fastened by two threads, attached to a belly-band, and one drop of laudanum was given to the child. Between one and two ounces of blood was lost in the operation.

About six hours after the operation, the plug was removed, and a portion of a gum catheter introduced into the bowel, so that the excrement might pass through it. The catheter was held by strings to the belly-band, and a wide tape was also passed round the instrument, and attached at each side to the above-named waistband, so as to cover the posterior part of the wound, and prevent the excrement from irritating it.

The child lost much blood between the time of the operation and the evening, but it was difficult to distinguish between coagulated blood and meconium mixed with clots. On the next day the patient was going on very well, but the little creature would not take any nourishment. On the third day the child was still doing pretty well, and was very quite, but it soon grew weaker, and died on the fourth day.

The post-mortem examination elicited the following appearances:—The cæcum was small; the transverse colon very long, and presenting a turn in its centre; the descending colon ran towards the umbilicus, then curved into the left lumbar region, and again descended, to terminate in an expanded cul-de-sac, which was attached to the brim of the pelvis, and into which the opening had been made. This terminal portion of the descending colon was increased in diameter to about double of the remaining large intestine.

Mr. Erichsen's operation was so far successful, that he succeeded in finding the bowel, and evacuating the meconium; and it may remain a question, whether the child died of original want of power, hæmorrhage, or irritation from effused excreta. It is well known that M. Amussat, of Paris, after having lost several cases from the latter causes, thought of bringing down the bowel to the artificially-made anal orifice, and fix it there by sutures, in order to afford the meconium a mucous canal towards the exterior, and prevent the inflammation and formation of abscesses consequent, upon the effusion of the fæcal matter in the pelvis. He has, if we remember well, put one or more successful cases of this kind upon record.

But the difficulty will always be, the finding of the bowel in the cavity of the pelvis; and Mr. Erichsen was particularly fortunate in meeting with it, the pouch being situated so high up as the brim of the pelvis. Liston was almost over-cautious concerning these operations, for he says, p. 573 of his 'Practical Surgery,'—

"When the rectum terminates at the top of the sacrum, or somewhere between that and the natural situation of the anus, an attempt may be made to reach the cul-de-sac by careful incisions, guided by the finger; but the narrow space does not admit of any deep exploration: the situation of the bladder and of the vessels of the pelvis is not to be forgotten; the plunge of a trocar at random is certainly not warrantable."

J. L. Petit likewise deprecates the puncture of the bowel with a trocar, when the pouch is two inches above the artificially-made anal orifice, as he considers that the effusion of meconium, and the subsequent absence of the sphincter, would in the first case cause death, and in the second, a continual escape of fæces. Should M. Amussat's operation get into favour, some of these drawbacks may be provided against, and a few of the unfortunate little creatures be restored to a normal state.—*Lancet, February* 1, 1851, *p.* 118.

---

## 88.—ON ULCERS EXTERNAL TO THE SPHINCTER ANI.

By John Hilton, Esq., F.R.S.

[These affections, giving rise to the most distressing and seemingly anomalous symptoms, Mr. Hilton states, are very often overlooked from want of due attention, and imperfect investigation; and he thinks that a very careful and circumspect examination should be made in all cases where a patient complains of considerable pain in passing his motions, whether accompanied or not by streaks of blood upon the fæces.]

As the sensibility of the ulcer and the character of the accompanying symptoms depends greatly upon the exact situation of the ulcer, I shall divide them into three distinct classes in relation to their position.

1st. Ulcers external to the sphincter ani.

2nd. Ulcers *within the circle formed by the internal sphincter muscle.*

3rd. Ulcers *internal to* the sphincter ani.

And the first case which I will adduce is an example of the first class —viz., ulcers external to the sphincter ani:—

*Ulcer external to the Anal Aperture.*—T. C., æt. 22, was admitted into Guy's Hospital, under Mr. Hilton's care, November 27th: states he is the driver of a stage waggon, has lived temperately, and enjoyed general good health. About two months since he first complained of pain whilst passing his motions, which has continued to increase up to the present time; it was supposed to depend on piles, for which he was treated, but without deriving any benefit.

On admission into the hospital, he still complains of severe pain whilst passing his motions, and for one hour after, as well as continual soreness and uneasiness around the anal aperture, and on examination several small ulcers, irregular in form, were discovered, varying in depth, though mostly superficial, around the verge of the anus. These, on being touched with the finger-nail, caused him pain and soreness, though not to be compared with that acute sensibility which exists when the ulcer is situated in the mucous membrane within the sphincter. He has been the subject of syphilis twice; but there does not appear to be any connection between this and his present disease. He was ordered to keep in bed in the recumbent posture, and to take castor oil two or three times a day, so as to keep up a gentle action on the bowels; also to apply an ointment, consisting of unguentum opii ʒj et unguentum hydrargyri fortius, ʒiij two or three times a day.

Dec. 3rd.—He had found great relief from the application: his bowels were regularly opened, and the motions pass without causing him much pain, whilst the small ulcers show a disposition to heal. From this time he continued to improve up to the 14th, when he felt quite well, all pain and uneasiness having entirely disappeared; the ulcerated fissures had completely healed, and the bowels were moved without causing him any inconvenience.

On reviewing the symptoms in this case, his sufferings, you will remember, were limited to about one hour after the act of defecation had been completed—a period of time unusually short, and of a much less protracted character from that in other cases which I shall have to bring before your notice before we quit the subject. This case also fully indicates the necessity for a careful personal examination, as I am aware that this patient had been under treatment for piles for some time previous to his admission into the hospital, and without any benefit.

The indications for treatment are—

1st. To keep the patient in the recumbent posture, so as to relieve congestion of the hemorrhoidal veins, through which, you will remember, venous blood is returned to the vena porta, contrary to the laws of gravitation, but which is accomplished by means of valves so arranged and adapted as to support a column of blood of a definite length, and of certain weight. And it is owing to some of these valves having become broken down that the remaining healthy valves are called upon to support a greater column of blood than natural, giving rise to those enlargements and yieldings of the veins just above the sound valves which constitute the true venous hemorrhoids.

The second indication is to keep the bowels open by mild laxatives; and of these the oleaginous appear to me by far the best; for in administering castor oil, which is the medicine I generally employ, it acts on the entire course of the intestinal canal, and at the same time lubricates the hard exterior of the fæcal mass as it passes through the rectum; and, indeed, in all diseases of the rectum you will find in castor oil one of the mildest and best purgatives you can employ.

The painful symptoms in the case I have read were soon partially relieved by these means, whilst great benefit was unquestionably afforded by the local application, consisting of the unguentum opii and unguentum hydrargyri fortius. The opium appears to prove beneficial by diminishing the excitability and irritability of the ulcer; but the modus operandi of mercury as a local application, or in what manner it affects the molecules of the system when given internally, is at present but very imperfectly understood. That the combination is an advantage I have no doubt whatever. The patient suffered most severely during the act of defecation; and this, though very frequent, yet is not always the case, as the pain is often more severe after the act of defecation has been completed. An explanation of the cause of this I shall offer you hereafter.

Very minute fissures, so small as scarcely to be perceptible even on careful examination, yet, when situated on the verge of the anus, may give rise to the most acute pain whilst the stools are passing; and I have known several instances where persons in full business occupation have been quite unable to pursue their avocation in consequence of this source of pain and uneasiness about the rectum, as well as from the mental anxiety and physical depression with which these affections are so commonly associated. One case strikes me very forcibly at the present time; and, as I think an illustration of the subject under consideration will be the more likely to impress it on your memory, I will briefly relate it. A gentleman actively engaged in business in the city was suffering from all the symptoms above alluded to, and had been under treatment for some time without any benefit. The rectum had been examined, but without affording any explanation of the cause of the symptoms. Being satisfied, however, in my own mind that it depended on some minute fissure about the anal aperture, which had hitherto escaped observation, I made a very careful and minute examination of the part; and, on making pressure around the verge of the anus, the patient soon expressed severe pain when I touched a particular spot. To this my attention was now especially directed; and, after manipulating so as to make the skin as tense as possible around the margin of the anus, I at last discovered a very minute fissure, scarcely a line in breadth, in that situation; and, on touching it with my finger-nail the patient instantly suffered the most exquisite pain. This case was treated by touching the fissure with nitrate of silver reduced to a fine point by rubbing it with wet lint; and, after three or four applications, the patient got completely well, and quite free from those harrassing and distressing symptoms with which he had so long been troubled. The fissure in this case appeared to have originated in a small follicle which had suppurated and never properly healed. This follicular disease does not always assume the form of an ulcer or fissure; you will not unfrequently meet with it in practice, where the enlarged follicle may be seen in a state of ulceration, the ulcer not being more than a pin's head in size, very sensitive to the touch, and painful during defecation, which may be cured by one or two careful applications of nitrate of silver to the ulcerated points.—*Med. Gazette, January* 10, 1851, *p.* 47.

## 89.—ON IRRITABLE ULCER WITHIN THE EMBRACE OF THE SPHINCTER ANI.

By John Hilton, Esq., F.R.S.

R. H., æt. 38, was admitted into the Hospital under my care, on December 4th, 1850: he is a hale, stout, and powerful man, by occupation a blacksmith, residing in Warwickshire. He appears to have drank rather freely, but has lived well, and until the commencement of his present illness enjoyed general good health. About five years since he became the subject of what was thought to be hæmorrhoids, and at the same time suffered severe pain in the rectum, and straining during defæcation, which lasted for a few hours afterwards: his bowels at the time were quite regular: the evacuations were followed by a small quantity of slimy matter, and the stools were now and then streaked with blood: this weakened him, and caused so much distress as to lay him up for a period of seven weeks, but after the use of some kind of injection these symptoms were quite relieved, and he apparently soon recovered. Occasionally, however, from that time up to twelve months since, he has been subject to attacks of pain of a similar character to that which he formerly suffered from, but which was soon relieved by the use of aperient medicines, and at the same time regulating his diet and habits. Five months ago the pain in the rectum became much aggravated, and has continued more or less up to the present period, but about three weeks since it became most acute during, but more especially after defæcation had been completed, when the pain lasted for a period of 5, 6, or 7 hours: he now noticed a slight purulent discharge from the rectum, occasionally streaked with blood; his bowels are habitually constipated, and his symptoms have been alleviated by the bowels being kept open by castor oil. On admission he complains of intense aching pain around the anus, which is somewhat relieved by diffused external pressure, as well as of a burning sensation during the passage of the fæces, which gives him the greatest horror of defæcation. The introduction of the speculum for the purpose of examining the rectum caused most severe pain, when a glassy, irritable-looking ulcer, about the size of a sixpence, was discovered, just within the embrace of the internal sphincter muscle, and on its posterior aspect, where it was connected with the base of an external pile: ordered castor oil mixture three times a day. On December 10th, his bowels having been freely opened, twice daily since his admission, from which alone he felt somewhat relieved from his pain, the patient was now submitted to the influence of chloroform, and when a state of anæsthesia had been induced Mr. Hilton introduced his speculum ani so as to place the slide of the instrument opposite the ulcer; the slide was now removed, and the ulcer could be seen without any difficulty through the fissured space; the internal sphincter muscle was then divided from without inwards by means of a sharp-pointed bistoury cutting directly through the centre of the ulcer; this was accomplished without any pain to the patient: the pile was removed with scissors. A cold sponge was applied externally, and the patient walked to his bed; the pile removed consisted only of hypertrophied cellular tissue.—Tr. opii, ♏xxx. statim sumend. 11th. He suffered considerable smarting pain for five or six hours after the operation, but since that time has been quite free from pain or uneasiness in the rectum; he passed a good night, and his bowels have not been disturbed. Pulse, skin, and tongue, natural. 13th. Has passed a motion to-day, for the first time since the operation without experiencing but little pain: the slight pain which occurred was quite of a different character from that which he suffered prior to the operation. 16th. He feels quite comfortable and free from pain; suffers a little uneasiness during defæcation, but none afterwards; there is still a slight purulent discharge On the 20th, he was quite well, and free from pain or uneasiness either during or after defæcation; he is to leave the hospital in a day or two. This patient was last heard of on January 12th, when he had resumed his work, and felt perfectly well.

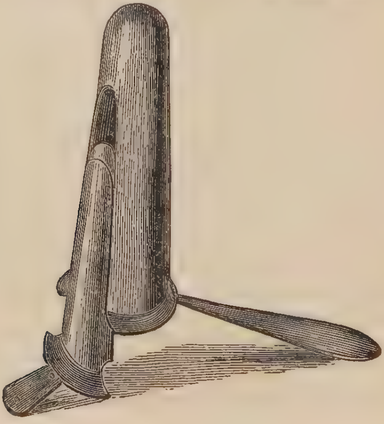
The pain in this case lasted for six or seven hours after the bowels had been moved, and the patient appeared to suffer much more after than during the act of defæcation itself. And, indeed, from the experience which I have had in these cases, this long continuance of pain after defæcation may almost be regarded as pathognomonic of an ulcer being just within the sphincter ani. The situation of the ulcer was in accordance with that which has been most frequently noticed,—viz., on the posterior aspect of the internal sphincter, and in that precise spot where the mucous membrane begins. You will remember, that prior to dividing the sphincter, the patient was placed under the influence of chloroform,—a very valuable assistance, as it not only subdues the resistance of the sphincter muscles, but spares the patient that most acute and excruciating pain from which persons labouring under this affection so commonly suffer on attempting to introduce the finger through the sphincter, and which must have necessarily been increased by the introduction of the speculum. Great difference of opinion prevails in reference to the primary cause of these ulcers: it is the opinion of some surgeons that they originate in a scratch or minute laceration of the mucous membrane by hardened fæces, or by some extraneous body—as from a fish bone or some other rough substance. I am more disposed to think that they originate in a diseased condition of some of the numerous follicles about the lower part of the rectum. In the present instance, however, the ulcer appeared to have commenced at the base of an external pile, which was removed when the sphincter was divided; and it seems reasonable to infer that it may have been caused in this case by the compression of the sphincter exerted upon the inflamed mucous membrane at the base of the pile.

The patient, as I have previously stated, complained of constant burning pain for some hours after defæcation. And I will now proceed to offer some observations as to why the pain is so cutting during the passage of the fæces, and why that smarting burning pain is so protracted and distressing after as to depress the patient both morally and physically. The explanation is easily understood by remembering the healthy anatomy of the part, which consists of a ring of muscle lined by mucous membrane having a very minute and abundant nervous supply: the sensitive and motor nerves are exceedingly large, and the continuance of pain depends on an excitation and subsequent reflex action upon the sphincter muscle; the pain commences, in consequence of the fæces, during their passage over the surface of the ulcer, irritating the nervous filaments exposed on the surface and around the margin of the ulcer: this irritation, conveyed to the spinal cord by means of the sensitive or excitor nerves, is again reflected back to the sphincter muscle by the associated motor or efferent nerves, causing the muscle to contract in direct opposition to the feculent mass which is about to escape. When the fæces have passed, the margins of the ulcer become approximated, the irritation is again set up, conveyed to and transmitted from the cord, giving rise to a continuance of the symptoms produced by the alternate contraction and relaxation of the sphincter muscle. Patients frequently complain of numerous other distressing symptoms—for instance, lumbar pains, pains or cramps in the course and distribution of the sciatic nerves; there exists also not unfrequently irritability of the bladder, and sometimes retention of urine, dependent on a spasmodic condition of the muscles of the perineum. Such symptoms, though generally considered anomalous, may be explained by bearing in recollection the intimate communication which exists between the pudic, lumbar, and sciatic nerves, and those nerves distributed to the anus.

[The pain which often remains three, four, five, six, or seven hours after defæcation in these cases, is from the compression of the margin of the ulcer by the sphincter muscle; by this the muscle is again excited to contract, and so contraction follows each excitation until the excitability of the muscle becomes exhausted from over-fatigue. In consequence of this increase in its action the muscle becomes hypertrophied and contracts with considerable force and energy. In the same manner the muscular tissue of the bladder becomes hypertrophied in stricture of the urethra or in stricture of the rectum or œsophagus; the muscle above the constriction increases in size to overcome the obstruction. The force and endurance of the muscle may be observed in cases of disease or injury of the spinal cord, in which the patient loses the power of volition over the muscle, which remains involuntarily closed, until the accumulation of the fæcal matter from its weight and pressure, causes the relaxation of the sphincter.]

The operation for dividing the sphincter muscle is very easily performed; nevertheless it requires to be done with caution, that your incision may not extend deeper than you actually intend or is required. This operation is proposed in reference to the method of contraction of the sphincter muscle, which is towards its own centre; and your object in dividing it is to do away with its contraction in that direction for a short time, so as to allow the fæces to be evacuated easily, and in this way to allay the irritation caused by their passage, whilst the ulcer, being undisturbed by muscular action, rapidly heals up by granulation. The operation being determined on, I would advise you to perform it as follows:—Having ascertained the position of the ulcer, which will most commonly be found to be situated on the posterior part of the rectum, place the patient on his back, or in any convenient position, on a table or bed before you. The speculum should now be introduced, with the slide corresponding to that part of the rectum in which the ulcer is situated; when the ulcer is clearly seen, the internal sphincter muscle should be divided from without inwards by means of a sharp-pointed bistoury carried directly through the centre of the ulcer. Some surgeons, however, object to the division of the sphincter by the knife, and recommend the forcible introduction of the finger through the anal aperture, in order to rupture some of the muscular fibres of the sphincter, and so favour the healing of the ulcer by granulation. This operation is very uncertain in its effects, and I have never yet known it to succeed. Other surgeons advise the introduction of the finger up the rectum, and having passed the straight probe-pointed bistoury upon it, to divide the sphincter from within outwards. This operation requires extreme caution, as you will be liable to wound more than you intended or more than is necessary, especially if the patient should chance to move his pelvis at the moment of the operation. In one instance which has come under my observation, where the sphincter was divided in this manner, the operation was followed by profuse arterial hemorrhage, which required pressure with the finger for several hours before it could be arrested.

In a second instance the hemorrhage was so severe from a large artery as to retard the recovery of the patient for a considerable time; and there is not much doubt but that cases have occurred in which the pudic artery itself has been divided by this mode of operation. Another disadvantage, also, is the liability of inflicting a wound upon the surgeon's finger by the subsequent effect of the simple puncture, of which, in operations about the rectum, more than one life has been lost. Another mode of performing the operation is by introducing the conical end of a tallow candle up the rectum, and then, with the sharp-pointed bistoury, dividing the sphincter from without inwards, the point of the bistoury being buried in the candle, when both are withdrawn, and thus preventing the liability of wounding the opposite wall of the rectum. I think, however, it is always far preferable to see what one is about, than to perform an operation as it were in the dark; and it is on this ground especially that I recommend to your notice the speculum ani which I am in the habit of using; in size and shape it resembles the ordinary speculum, being about three inches in length. It differs from it, however, in being of plated metal instead of glass, whilst a quarter of its circumference is made to slide in and out in a small groove. On first introducing the instrument, you should always endeavour to place the slide opposite the ulcer; and having effected this object, the slide should be withdrawn, when the size and character of the ulcer can be clearly seen.



The speculum is also furnished with a handle, which places it more under your command during its introduction, and enables an assistant to steady it in any position you may require whilst performing the operation. In addition to the great advantage of seeing what you are about, the speculum also enables you to discover the source, and arrest any hemorrhage that may arise as the consequence of the operation. Thus, if important bleeding should come on after the sphincter has been divided, do not attempt to withdraw the instrument immediately, but search for the bleeding vessel, and if it proceed from an artery (for branches of the hæmorrhoidal are occasionally divided), place a ligature upon it; but if it be a general oozing of sufficient importance to require its arrest, plug the speculum with lint; by so doing you may make pressure to any extent you please on that part alone where it is required. These remarks apply also to the operation for fistula in ano. Not many months since, I divided the sphincter of a patient in the hospital for this disease, when a small artery bled very freely. By the aid of the speculum, however, I had no difficulty in seeing and securing it, thus placing the patient in a state of comparative safety after the operation, and relieving him and myself from that anxiety and apprehension which must always exist whilst hemorrhage continues. These circumstances all tend to show the advantage derived in dividing the sphincter, by the use of the speculum, over the other modes of operation which have been recommended; it enables you to see clearly what you are about, and places any hemorrhage that may occur under your immediate control, and may be compared to performing an operation in the light instead of the dark.

The next question for cousideration is the extent of division necessary. And in answer to this I would advise you to divide the sphincter to about half an inch in depth, cutting directly through the centre of the ulcer. The most perfect operation that can be performed is to divide the muscular fibres down to a sheath of whitish yellow cellular tissue, which lies immediately exterior to the sphincter muscle; this layer of cellular tissue should not be touched: it cannot, however, always be seen; but when exposed, it affords the most certain indication that the operation has been perfectly completed: when the muscle is divided, a gap, of course, is left between the two portions, and this, after a time, is filled up by white fibrous tissue: muscular fibre never being reproduced: this new tissue, not being contractile, allows an easy passage to the fæces until the ulcer is healed, and when the patient is restored to his usual health, and the sphincter has resumed its normal action, this newly formed tissue must be regarded rather as an advantage than a detriment to its natural offices, inasmuch as it prevents spasmodic action, and allows the easy escape of feculent matter at all times.

The mode of treatment to be adopted after the operation has been performed may be somewhat varied. I have been sometimes in the habit of introducing oiled lint between the edges of the wound, with the intention of causing it to heal up from the bottom by granulation. This, however, is not absolutely necessary; and its insertion and retention often cause considerable pain to the patient: a cold sponge may be applied externally over the anal aperture for the purpose of checking hemorrhage and keeping down the temperature of the part. In addition to the ulcer, which in the preceding case was situated in the direct embrace of the sphincter, the patient was also the subject of a small external pile. This I removed with the scissors after dividing the ulcer. On cutting into the pile afterwards, it proved to be nothing more than hypertrophied cellular tissue, covered by a prolongation of the mucous membrane and adjacent skin; and whilst speaking of this, it may, perhaps, not be out of place to suggest to you that when this kind of pile becomes much swollen, the liquor plumbi diacetatis in a pure and undiluted form will be found a most valuable application, as from its astringent properties it corrugates the pile; and in some cases it has acted so well as to do away altogether with the necessity for any further treatment. I will now proceed to point out to you some of those additional circumstances produced or induced by ulcer of the rectum; and amongst the most prominent of these may be mentioned constipation. This I have already alluded to as a symptom in most cases of ulcer of the rectum; but there is another light in which it must be regarded, and the cause of which, on being first discovered, often assumes a very serious character, giving rise to great anxiety and distress to the patient, and respecting which you will be very likely to form an incorrect diagnosis if its nature and origin be not correctly understood. I allude to enlargement of the glands in the neighbourhood of the rectum; and perhaps my meaning may be best explained by first drawing your attention to a state of things essentially similar occurring on the exterior of the body, where the commencement and progress of the symptoms are better noted from being from the beginning under ocular demonstration, and on that account more easily understood. Thus, for example, when a person has an ulcer on the toe, you are not surprised to find an enlargement of the glands in the groin, owing to a morbid fluid having been carried there through the medium of the lymphatics, extending from the ulcer on the foot, and opening into those glands. An ulcer on the prepuce also gives rise to an enlargement of the glands in the groin in a similar manner: so it is with the rectum; an ulcer in its mucous membrane may give rise to enlargement of some of the numerous lymphatic glands situated around the rectum; and these glands, as you will remember, lie close to very important parts, by pressure upon which one can readily understand the seemingly anomalous symptoms which occasionally manifest themselves.

Thus in the male these glands are adjacent to the peritoneum, the prostate gland, and the urinary bladder; whilst in the female their contiguity to the ovaries and uterus, &c., may give rise to a new set of symptoms associated with the implication of these organs. So that there is nothing peculiar about these sympathetic glandular enlargements, as they are termed; it is a condition often observed in other parts of the body, and may be explained on common principles. When these glands, however, become enlarged they necessarily diminish the calibre of the gut, by encroaching on its walls, and give rise to one form of stricture of the rectum, with all its attendant symptoms, consisting of pain, straining, and difficulty in voiding the fæces, which, under such circumstances, are passed in small flattened pieces, frequently accompanied also by irritation of the bladder or uterus, and cramps in the lower extremities. Several instances of this sympathetic enlargement of the glands upon the rectum have come under my own observation, one or two of which I will briefly relate in illustration:—

About twelve years since, a gentleman, twenty-five years of age, had undergone the operation of dividing the sphincter for an ulcer situated at the anal aperture. The wound assumed a very unhealthy aspect, his general health became much impaired, and pelvic symptoms supervened. On making an examination of the rectum, several large, hard, rounded, and tender masses were felt pressing upon the rectum, distant about two or three inches from the anal aperture, and were very much feared to be of a malignant character. The patient was sent into the country for the purpose of improving his general health, when the ulcers healed, and in about six weeks he was quite recovered, without any evidence of glandular enlargements remaining.

A second case came under my notice in May 1849, in a lady, æt. fifty, who had an ulcer at and within the margin of the anus, extending inwards to the size of nearly half-a-crown, from which she had suffered upwards of eight months, and which was attended with the passage of blood in the fæces. The rectal glands could be felt much enlarged, and encroaching upon the rectum, giving rise to so much difficulty in the passage of the fæces as to require half an hour or more for the completion of defæcation. I divided the internal sphincter muscle; the enlarged glands disappeared and the patient perfectly recovered.

It is the opinion of some surgeons that stricture from spasmodic action of the sphincter ani may exist without any local excitant in the shape of an ulcer or fissure; but I have never seen a case in which it has been satisfactorily proved. One case of clonic spasm of the sphincter ani came under my notice where no ulcer could be detected; but in this case there could be no doubt, as the result of treatment proved, that it depended on irritation originating in the prostate gland.

In concluding my remarks on the treatment of these ulcers, I may state that it is not always necessary to divide the sphincter ani. The local applications of mercurial ointment, with belladonna or opium, are sometimes quite sufficient to relieve the patient, at the same time maintaining the recumbent posture, and regulating the bowels by mild oleaginous purgatives. If this does not succeed, nitrate of silver should be applied every second or third day, the object being to destroy the surface of the ulcer and its margins. The application should be carefully made by the assistance of the speculum ani. Nitrate of silver appears to act beneficially by producing a more healthy secretion, and exciting a more healthy action in the part. Opium alone is in some cases of great value as a local application; but you should always watch its use very carefully, as patients are often apt to think that the more they apply the sooner they shall get well; and it has happened more than once that they have become narcotized from its effects.

It does occasionally occur that a patient has two ulcers at the anal aperture at the same time; and under such circumstances, as a rule, it is not necessary to divide both. In this case of double ulcer I would advise you to divide the posterior in preference to the anterior; for if you divide the anterior, the feculent mass, in its escape from the rectum, has a natural tendency to proceed backwards as well as downwards, would sweep over the posterior ulcer, and thus keep up a constant source of irritation: if, however, when the posterior has been divided, the anterior does not heal, apply nitrate of silver to it, and then both will probably heal up: but should the anterior ulcer persist after the healing of the posterior, it may be subjected to the operation of division.

All ulcerations within the anal aperture are not necessarily the result, either of a scratch in the mucous membrane, or of a diseased condition of some of the follicles about the rectum; but these ulcers sometimes owe their origin to a specific poison, and are in truth ulcers of a specific character,—or, in other words, chancres. These may in general be recognised by the ordinary characters of chancre occurring in other parts; their chief diagnostic marks being hard bases and raised edges, whilst they are the result of inoculation.

In the treatment of such specific ulcers it is an important point to determine whether it be right to divide the ulcer and the sphincter at once, according to the method of treatment adopted in the ordinary ulcer, or in the first place to endeavour to effect a cure by a constitutional plan of treatment. If the patient can lay by for a time, I would recommend you always to adopt the latter course in preference to the former; inasmuch as, when the sphincter has been divided, the cut surface of the wound may take on the same kind of morbid action, and assume the precise characters of the original ulcer: so that your safest and most judicious course would be to treat the specific ulcer by its appropriate remedies, as mercury, &c., but if, after a time, you have reason to believe that the specific constitutional taint has been eradicated, and yet the ulcer does not heal, you can then with safety treat it in the ordinary method, by the division of the internal sphincter muscle.

Sometimes ulcers at the verge of the anus assume a decidedly malignant character, and give rise to considerable anxiety respecting their progress and probable termination. A case of this kind came under my notice, about four years ago, in a man of middle age; the disease did not present the usual characters of a common ulcer about the anal aperture, neither was there any evidence to show that it was of syphilitic origin. Nitrate of silver was repeatedly applied, but without producing any benefit; and the general aspect of the ulcer was quite of a malignant character. As there were no co-existing glandular enlargements about the rectum, I excised the ulcer, and removed at the same time a small triangular piece of the margin of the anus, including a portion of the sphincter; taking care to cut away the whole of the disease. The result was very satisfactory, as the patient recovered, and had no return of the disease afterwards.

If you have any suspicion in your mind that the ulcer is of a malignant character, do not divide the sphincter at once, under the idea that after all it may be merely an aggravated form of the common ulcer; for, by doing this, you will not afford the patient any benefit, but, on the contrary, do a great deal of harm, and at the same time materially interfere with the success of any subsequent operation.

Associated with this subject is another, of equal importance, which I have not previously spoken of, and the nature of which is very likely to be misconstrued, if its cause be not properly understood: I allude to those small ulcers occasionally observed in the fourchette in the lower part of the vagina,—a disease of by no means unfrequent occurrence, and of an exceedingly painful and sensitive character, and one which very often remains for a long time uncured. It orignates in a diseased condition of the follicles in that part, being quite independent of any specific cause. The treatment must be conducted on the same principle as that for ulcer at the anal aperture, and consists in the division of the sphincter vaginæ, which is best effected by passing the bistoury through that muscle, on the same side as the ulcer, and about one-fourth of an inch above the fourchette; after which the ulcer, in general, speedily heals.—*Med. Gazette, January* 24, *p.* 133, *and February* 7, 1851, *p.* 221.

## 90.—ON THE TREATMENT OF PROLAPSUS RECTI.

By John Mackenzie, Esq., Surgeon, Naval Hospital, Archangel.

[The following mode of operating for this obstinate affection cannot but be interesting, as Dupuytren's *plica,* even with its risk of internal hemorrhage, oftener fails than succeeds, and the same remark also may be made with regard to the use of the actual cautery.]

Before proceeding further I shall make a few remarks on the nature of the disease, in order to explain the *modus operandi* of the method in question. It must necessarily follow, before a falling down of the rectum can take place, that its attachments to the surrounding parts must have given way: besides, there obtains, in cases of long-standing, a relaxed or atonic state of the levator ani muscles, almost approaching to paralysis; so that protrusion takes place from the slightest exertion, even in the simple act of walking. In order, then, to effect a radical cure, it is necessary to use such means as shall restore this lost adhesion, by exciting sufficient degree of inflammation for this purpose, and which, at the same time, shall prevent protrusion till adhesion takes place, and shall rouse the nervous and muscular energy of the sphincter and levator ani muscles. This is effected in the most satisfactory manner, without the slightest danger to the patient, by passing a strong ligature, by means of the crooked needle, through the anal aperture laterally, introducing the needle at the distance of an inch from the verge of the anus on the left side, and transfixing the rectum at the depth of half an inch, making it emerge on the right side at the same distance as on the opposite. This being done, the ligature is firmly tied, and the patient is put to bed, with ice applied to the part, to prevent undue inflammatory action.

The presence of this ligature, or rather suture, causes considerable pain and excitement. The sphincter is observed to contract forcibly, the pulse quickens, the skin gets hot, and the cheeks become flushed. The ligature is maintained till its presence has brought on considerable fever, or the pain becomes intolerable, when it is removed, and the ice continued for several days, till the cure is completed.

Case I.—While assisting at some operations at the Military Hospital of this place, on the 12th of January, O.S., 1851, the head medical man of that hospital, Mr. Schmidt, asked my advice respecting a case of prolapsus ani of long standing. The patient, a soldier, aged 35, Ambrosini Molin, of strong frame, had laboured under this disease for a year and a half; there was so much weakness of the sphincter muscle, that the prolapsed gut could not be retained, but always protruded to the extent of three inches. From the prolapsed part there was a copious and constant discharge of mucus and bloody serum, by which he was reduced to extreme exhaustion; he looked pale and leuco-phlegmatic, like a person labouring under long-continued hemorrhage; he said he felt so miserable, that life was a burden to him. The operation was performed by me, as above described, at one o'clock that day, and in twelve hours' time there was so much pain and fever that it was found necessary to remove the ligature, continuing the constant application of ice. In twelve hours more the fever had subsided. On the fourth day, to relieve the bowels, a dose of castor oil was given to the patient, which operated without any sign of protrusion, nor did a relapse take place from that day forward.

Case II.—Peter Simakoff, a retired soldier, aged 35, entered the Military Hospital on the 3rd of February, 1851, ill of prolapsus ani, and from the patient being in a state of mental imbecility it was impossible to find out from him how long he had laboured under the disease; all we could ascertain on this head was, that he had been in the hospital in the beginning of 1850, ill of the same complaint. On February 18th I operated upon him in the same manner, and as no fever ensued the ligature was continued till the fourth day, when it was removed, no protrusion following the use of the bowels, which was obtained by means of cold injections. On the 25th, the patient, from long straining, brought on a slight relapse, in consequence of which I found it advisable to operate a second time, in order to effect a radical cure. I accordingly applied the ligature again on the 27th of February, avoiding this time the application of ice for four hours after the operation, so as not to prevent the necessary degree of inflammatory action. On revisiting the patient on the 28th, I found him in a violent fever; yet, from his state of imbecility, he complained of no pain. The ligature was removed, and ice continued. Since, no relapse has taken place, and to all appearance the cure is radically complete.

This case clearly shows that the ice should not have been applied in the first instance, until febrile excitement had shown itself. I look upon this agent, however, as powerfully conducive to the cure, inasmuch as it moderates inflammatory action, while at the same time it tends to keep up the spastic action of the sphincter ani muscle after the ligature is removed.

Case III.—Kanagool Thangaroff, a Tartar of the Kirgis tribe, aged 31, a soldier of strong athletic frame, entered the hospital for the cure of prolapsus ani on March 9th, 1851; the disease was of two years' standing, and proceeded, to the best of his knowledge, from long continued diarrhœa. On stooping, the gut protruded to the extent of two or three inches, the anal aperture dilating enormously. On the 10th, at one o'clock, P.M., I performed the operation as described, with this little difference, that the needle did not penetrate so deeply; this was owing to the anus being, in this case, so deeply sunk in the outlet of a very narrow pelvis. On tightening the ligature the patient complained of much pain: he was put to bed, with orders not to apply ice until some fever had set in, which took place in the course of five hours. In the evening he felt a call to go to stool, when cold water was injected per rectum, and the bowels relieved, the ligature offering no resistance.

11th.—The fever much less; still considerable pain from the ligature; bowels twice open.

12th.—Being the third day of the operation, there was no fever, and the pain from the ligature was little complained of.

On the 13th the ligature was removed, and caution given to inject cold water per rectum, previous to his going to stool, and to avoid straining. No protrusion has taken place since, notwithstanding that the bowels have been open twice a day. The cure may be considered as permanent.—*Med. Gazette, April* 18, 1851, *p.* 676.

91.—*On the treatment of Hæmorrhoids by Operation.*—By F. C. Skey, Esq.—[Mr. Skey believes he avoids in operating in hæmorrhoidal cases, the liability of bleeding after the use of the knife alone, by combining the use of the knife and ligature together, which he does in the following manner. He says,]

The mode I allude to consists in passing a thin copper or iron wire in the form of a loop, made through a double canula around the root of the growth, and strangulating it by drawing the wire tight. This being accomplished, the canula may be retained in this situation for any length of time, from half an hour to an hour or more, and the pile may then be removed with the knife or a pair of scissors; and, as it is far easier to arrest bleeding at the commencement than when established, so, should bleeding occur, immediate pressure should be applied by the finger or by pads of lint. Serious hæmorrhage, however, is a rare occurrence.—*Brit. and For. Med. Surg. Review, April* 1851, *p.* 295.

## URINARY ORGANS.

### 92.—ON STRICTURE OF THE URETHRA.

By Professor Syme.

[On this subject of discussion and dispute we ought fairly to remember what are the cases in which Mr. Syme recommends the operation—they are, 1st. Not strictures of the ordinary kind, but those which resist all the ordinary modes of treatment. 2nd. Only those cases are selected which have resisted dilatation, or which have speedily contracted after dilatation. The cases, therefore, operated on by Mr. Syme, are not all cases indiscriminately which are brought before him, but only the worst of these; they must, therefore, be comparatively few. If the different practitioners who have written on this subject would bear this in mind, they would perhaps give more time for the full development of the success of Mr. Syme's operation. In a letter to the editor of the Lancet, Professor Syme makes the following remarks upon his method of treating strictures:]

The positions which I have endeavoured to establish are,—1st, that the division of a stricture by external incision, upon a grooved director, passed fairly through the contracted part, is an operation free from all ordinary sources of danger. 2nd, that by this procedure, strictures which resist every other mode of treatment, and are apt to resent seriously even the gentlest use of simple bougies, may be speedily removed, so as to allow instruments of the largest size to be introduced without difficulty or inconvenience; and 3rd, that the relief thus afforded is more permanent than that which can be obtained in any other way.

In support of the first position, I hope it will be sufficient for me to state, that I have performed the operation in thirty-five cases *without a single fatal result.*

In regard to the second and third positions, I trust that such facts as the following, and similar ones, of which I can send you an ample supply, will be deemed satisfactory evidence.

Case 1.—J. Mc M——, aged twenty-seven, a farmer, from the neighbourhood of Belfast, recommended to my care by Dr. Moore of that place, was admitted into the Royal Infirmary on the 8th of November, 1850, on account of stricture of the urethra, under which he had laboured for the last ten years. He attributed the disease to a bruise of the perinæum, attended with hæmorrhage from the urethra, which had been sustained from his having been thrown with great force upon the shoulders of a horse he was riding. The symptoms of stricture succeeded, and were followed by an abscess of the hip, with fistula in perineo. Through the use of bougies this opening closed; but as the stricture remained, he four years and a half ago was repeatedly burnt with caustic, with the effect of rendering the contraction tighter than it had been previously. The permanent introduction of catheters, which were left in for a week at a time was then tried without any benefit, but with the further aggravation of an inflamed testicle. Fomentations and leeches were afterwards employed so assiduously. that the patient declared he had applied no fewer than a thousand of the latter. He had repeatedly suffered from retention of urine, which required the catheter for his relief. In these circumstances, feeling unable for any active exertion, or even to exist with comfort and safety, he had come from Ireland very desirous of obtaining relief, and willing to suffer any treatment that might be considered likely to afford it.

Upon examination it was found that there were three strictures, one very near the orifice of no great tightness; another very tight, about three inches back; and a third no less so, between five and six inches from the orifice. Bougies of the smallest and second smallest size were repeatedly introduced into the bladder, without the slightest force, or the effusion of a single drop of blood. But the patient, instead of experiencing any relief from the attempts thus made to effect dilatation, complained of the symptoms being greatly aggravated, so that he could void his urine only by drops, with much pain and straining.

On the 18th, a grooved staff of sufficiently small size was passed through the anterior stricture, and a subcutaneous incision having been made at the fore part of the scrotum, the contracted part of the canal, which could be felt distinctly much thickened and indurated to the extent of half an inch, was freely divided. The staff was then passed through the posterior stricture, which was divided by external incision in the perinæum. A No. 7 silver catheter was then passed into the bladder, and retained by the requisite fastenings. There were only a few drops of blood lost during the operation, and but little afterwards.

On the 20th the catheter was removed. On the 24th the patient expressed himself as quite well. Only a few drops of water escaped through the wound in the perinæum, but in the situation of the anterior stricture there was an abscess the size of a hazel nut, which was evacuated by incision.

On the 27th the urine had ceased to pass at all by the perinæal, but continued to issue through the anterior opening. A full-sized bougie was passed without difficulty into the bladder.

On the 9th of the December the anterior opening was quite closed, and on the 17th the patient was dismissed, declaring that he felt completely relieved from all the distressing symptoms under which he had previously laboured.—*Lancet, January* 25, 1851, *p.* 96.

Case 2.—George T——, aged forty-five, began to suffer from stricture about eight years ago. Between six and seven years ago he was twice under my care; first for a short period, during which the contraction was only partially dilated, and afterwards for six weeks, when the process was completed through the use of simple bougies. He then went to Canada, and was employed in a remote part of the colony as the agent of a mercantile establishment. Finding the stricture again troublesome, he repaired to ——, where various attempts were made to pass instruments, but without success. In these circumstances he was advised to seek my assistance; and having crossed the Atlantic with this view, was admitted into the Royal Infirmary on the 12th of June last. The perinæum was greatly swelled and very hard, so as to form with the posterior part of the scrotum one mass of induration. On proceeding to examine the urethra, I found a tight stricture anterior to the bulb, through which a bougie of the smallest size was passed fairly into the bladder at the first attempt. I then carried on the dilatation with the effect of removing the perinæal hardness and relieving the patient from his distressing symptoms, so that he was dismissed as cured on the 11th of September.

On the 21st of November he returned in a worse plight than ever; the swelling in the perinæum having recurred to more than its former extent, and there being not only very frequent calls to void his urine, but also an inability of retaining it. I had no doubt that through the use of bougies temporary relief might again be afforded; but from the repeated relapses which had taken place, distrusting the permanency of any good effect obtained in this way, I concluded that division of the stricture would be expedient, and, to facilitate this proceeding, made a free longitudinal incision through the perinæal swelling, which was afterwards poulticed for a few days.

On the 28th, the swelling having become greatly diminished in size and hardness, I introduced a grooved director, divided the stricture, and secured a moderate-sized catheter in the bladder. The bleeding at the time of the operation and subsequently to it did not altogether exceed two tea-spoonfuls. The catheter was removed on the 30th. The urine came partly by the urethra and partly by the wound until the 17th of December, when it flowed entirely by the natural channel. On the 24th the wound was completely healed; instruments of the largest size were introduced and withdrawn without the slightest difficulty or feeling of constriction, and the perinæum was perfectly natural in form as well as consistence. The patient remained another week, and was then dismissed, expressing the most confident persuasion, founded upon the difference of his feelings from those experienced on any former occasion of relief, that he was at length free from stricture; his reply, when asked how the stricture was, always being, "I have no stricture now."—*Lancet, February* 15, 1851, *p.* 176.

Case 3.—Towards the close of 1844, Dr. Wickham, of Penrith, brought me a patient, apparently labouring under very formidable disease of the urinary organs. His age was about forty-five years, during twenty-seven of which he had suffered from stricture of the urethra, and been under the treatment of several practitioners. Latterly, finding the complaint more troublesome than at any previous period, he had repaired to a surgeon in Yorkshire, who had formerly afforded relief, and remained under his care for many weeks, without experiencing benefit, or indeed ever getting an instrument passed through the contracted part; and, in addition to his other sufferings, he became afflicted with a swelling in the perinæum, of such stony hardness, as to suggest the suspicion of carcinomatous degeneration.

On examination, I found that a full-sized bougie could be carried down to the verge of the anus, and consequently beyond the region of stricture, but no farther; from which I inferred the existence of a false passage, resulting from the means that had been used, through the forcible and continued pressure of a large catheter with the view of thus effecting dilatation—a method, it may be remarked, which, like some other means of treatment, is most applicable to those cases where the stricture exists only in imagination. The perineal swelling was about the size of a hen's egg, distinctly circumscribed, and extremely hard, but on the whole suggested the idea of its being the effect of local irritation, rather than of malignant action.

I therefore commenced the treatment by making a longitudinal incision in the course of the raphé of the perinæum, and then applying poultices with the effect of greatly reducing the induration and enlargement. Through careful exploration of the urethra, a small bougie was then conveyed into the bladder, and followed by a succession of larger ones, until the patient seemed able to go home with the prospect of complete relief. In a very short time after doing so, he began to suffer as before, and in the spring of 1845 again placed himself under my care, with all the symptoms of stricture in their most aggravated form.

I then resolved to divide the stricture by external incision, and did so upon a grooved director, which was with some difficulty guided through the contraction. Upon trying to pass a catheter into the bladder, I encountered an unexpected difficulty, from the instrument constantly taking the false route, so that after descending to the verge of the anus, it could not be advanced farther. Concluding from this that the contracted part had not been sufficiently divided, I reintroduced the director, and extended the incision through the urethra beyond the orifice of the false passage; after which, a catheter was readily conveyed into the bladder. The patient experienced no inconvenience, and in the course of two or three weeks was completely restored to health, far beyond what he ever expected, or almost recollected, to have enjoyed.

About three years afterwards, having, as it was alleged, led a rather irregular life in the interval, he returned under the apprehension of a relapse being threatened; but I found that the urethra, though slightly contracted, readily admitted instruments of the full size, and therefore sent him home, with advice to have a bougie passed occasionally by Dr. Wickham. In a letter from this gentleman, dated the 11th current, replying to an inquiry from me as to the patient's state, it is said that he had bougies passed regularly for a considerable period, but for a long while past has not made any application for the purpose. Dr. Wickham adds, "I have always considered this as a capital case, and should any of my patients get into the same state, I shall strongly recommend the same means of relief to be used."—*Lancet, March* 1, 1851, *p*. 236.

[With regard to the danger of the operation and the permanence of its effects, Mr. Syme says in another paper:]

As to the danger of the operation, I contend that if the incision be made in the mesial line of the perineum, there is no vessel of the slightest consequence that can be cut; and that, if the deep fascia of the perineum is not divided, which it never requires to be, there cannot take place extravasation of urine, unless perhaps forwards in a slight degree into the scrotum, where it may occasion a little suppuration, utterly unworthy of attention, when compared with the great object in view. I therefore maintain, that the operation is absolutely free from danger; and appeal to the fact, that I have performed it between forty and fifty times without a single fatal result.

With regard to the permanence of effect, I have ascertained beyond question, that even in the most severe and obstinate forms of the disease, complete and permanent relief may be afforded by the operation. But my opponents would seem as if they had understood me to say, that it *must* produce this effect, and have eagerly endeavoured to hunt out some case of relapse, as a complete extinguisher of the procedure. Now it is really difficult to imagine anything more unfair or illogical than this proceeding on their part, since, independently of all other circumstances calculated to influence the result, it is plain that any imperfection in the operation itself may prevent the result from being successful. A single instance of unequivocal success should therefore counterbalance almost any amount of partial or complete failure. But, in point of fact, the result of my practice has been entirely favourable, with hardly any exceptions, and these I doubt not might have been avoided with the assistance of more extended experience and knowledge of the circumstances adverse to complete attainment of the object in view. The precise extent to which the stricture requires to be divided, does not appear to be the same in all cases; and I have also generally remarked, that when the wound of the urethra heals by granulation, instead of the first intention, there is less risk of future trouble. In the 'Lancet,' there lately appeared a letter recommending attention to this circumstance, as the sure means of affording permanent relief, but without any mention of the fact, that the author, being one of the pupils of my class, had heard me express a suspicion to this effect in my lectures, and witnessed a case treated in accordance with it. Upon these, and various other points connected with the operation, I have been carefully making observations for several years past; and when they have been tested by time, so as to be matured from crude speculations into trustworthy principles, I shall not fail to bring them before the notice of the profession.—*Monthly Journal of Medical Science, April,* 1851, *p.* 337.

Dr. MACKENZIE remarks, that in estimating the danger attending the division of the stricture on a grooved director, the consequences of the old operation should be kept entirely out of view. The two operations were essentially different. In the operation proposed by Mr. Syme, the limits of the part requiring division were distinctly defined, and the extent of the induration was felt by the finger, when the urethra was exposed by external incision. The point of the knife was made to enter the groove in the instrument immediately behind the induration, and pushed forwards, till the gristly texture constituting the stricture was fairly divided. The urethra was thus divided in the mesial line, and no more was cut than the contracted portion. In the old operation, on the contrary, the knife was plunged into the dilated part of the canal behind the stricture, and was carried forwards as nearly in the course of the urethra as the operator could guess, till it met the point of a catheter introduced down to the seat of stricture. In addition to the incision being thus a more extensive one, there was no certainty as to the parts which were divided, as to the urethra being opened in the mesial line, or even as to the constricted part of the canal being laid open at all. A passage was certainly established, by which the catheter could be introduced into the bladder, but a very different one from that formed by cutting on a grooved instrument passed through the stricture.—*Monthly Journal of Med. Science, April,* 1851, *p.* 384.

[Professor MILLER, of Edinburgh, seems to us to have taken an impartial and correct view of these cases. Mr. Syme, himself, only selects those cases which have resisted all ordinary treatment. Mr. Miller does not underrate the importance of the operation in these instances, as will be seen by the following remarks. He draws the following conclusions:]

1. That most strictures are permeable; that the great majority of these are curable by other and safer means than perinæal section; and that the metallic bougie and catheter, when rightly used, are neither so injurious nor so inefficient as Mr. Syme has represented them to be. 2, That permeable strictures, which refuse to yield to cautious and correct instrumentation, combined with suitable general treatment—strictures, also, which yield in part, but speedily and pertinaciously relapse—and

strictures which are so impracticably irritable as absolutely to interdict the use of instruments, even with the aid of chloroform, opium, Indian hemp, nitrate of silver, &c.—that such strictures may and ought to be treated by perinæal incision, after the manner of Mr. Syme; *but that such strictures are very few.* I may add, that strictures which, though bad, do not yet come altogether within the preceding category, may be subjected to perinæal incision, when *time* happens to be of great importance; where the patient, for example, is a labouring man, and anxious to be as short a time as possible laid aside from the maintenance of his family. 3. Those strictures which are impermeable, or ought to be considered such—and they may be expected to prove still fewer—should be treated by perinæal section, after the old method—making a direct incision in the central raphé down upon the obstructed part, guided towards the limits of this by a catheter or sound passed down to the stricture, in front, and by the dilated portion of the urethra behind, cutting through the stricture completely, endeavouring to open the primal canal, and lodging a catheter of medium size in the bladder. This operation seems to be somewhat harshly spoken of by Mr. Syme. The new canal is not necessarily either "tortuous" or "imperfect;" and the uniform presence of dilatation behind the stricture, already alluded to —never farther back than the membranous portion of the urethra—prevents "the immediate hazard of failure in accomplishing the introduction of a catheter into the bladder." The best proof of the safety of the procedure is, that it has been practised successfully by Sir B. Brodie, Sir C. Bell, Mr. Liston, (frequently, and "without difficulty"), Mr. Jameson, and, besides not a few others, by Mr. Syme—although, indeed, the last-named gentleman, in his recorded case, added the somewhat equivocal innovation of rendering the incision subcutaneous.

As to Mr. Syme's monograph, I would respectfully observe, 1. That while he has overstated the risk attendant on the use of the metallic bougie and catheter in the treatment of stricture, he has understated their efficiency. 2. That the operation proposed by him is admirably adapted for certain specified cases; few in number. 3. That it is not applicable to all cases intractable by other means, there being some strictures which are actually, or which should be considered to be, impermeable. 4. That the operation is not devoid of danger. 5. That progress towards cure, thereby, is not always smooth and uninterrupted. 6. That the operation will be found not always, and probably not often, sufficient of itself to cure. 7. That, subsequently to the operation, instrumentation is required in the ordinary way; the main use of the incision being, besides diminution of morbid irritability, to give the practitioner a good *start* in the use of the bougie, as after tying in a catheter. 8. When cure is completed, by instrumentation following on incision, dilatation may be expected to prove permanent; inasmuch as such cure may not depend on mere expansion of the primal canal, but on something like *reproduction* of a portion of the urethra at the strictured part—a supposition which seems encouraged by the case narrated by Sir C. Bell, (p. 130, Surgical Observations), in which he states that he not only cut into, but actually "*cut out* a portion of the callous urethra;" and, notwithstanding, the patient was cured, through the use of bougies, "making a full stream of urine by the natural passage." The ordinary tissues at the part may be condensed, changed, and invested by a membranous lining, so as to cure the constriction by not merely dilating the old canal, but by *patching*, or *letting in* a new portion. Towards this end, however, it is very obvious that the use of the bougie, subsequently to the operation, is quite essential.

Or, further to condense, I believe that Mr. Syme's operation is a good operation, and an important addition to operative surgery, applicable to certain bad—very bad—strictures, which, however, are likely to prove, in the hands of a surgeon who practises all the departments of his art, and practises them all well, extremely few. 2. That those bad strictures, which are still worse, being impermeable, should be cut in the old way, and that such strictures are likely to prove still fewer. 3. That all other strictures—and these constitute a vast and overwhelming majority of all strictures—should be treated by instrumentation (catheter or bougie) variously employed, without incision.—*Lancet, March* 22, 1851, *p.* 322.

## 93.—NEW INSTRUMENTS FOR STRICTURE OF THE URETHRA.

By Thomas H. Wakley, Esq., Surgeon to the Royal Free Hospital.

[Mr. Wakley states that during five years which he has been connected with the Royal Free Hospital, in which some of the worst cases of stricture and retention of urine have been seen, he has never except in one instance failed of passing an instrument into the bladder. In three cases of perinæal incision which he had seen performed, two very speedily proved fatal. Time is required to prove which of the principles is most advantageous, that of simple dilatation of the urethra, or the division of it by the external or internal incisions. It is satisfactory to find, says Mr. Wakley, that the principle of the first method of treatment has received the approval of many eminent surgeons. The following is the description given by Mr. Wakley of the instruments he now employs in cases of obstinate stricture.]

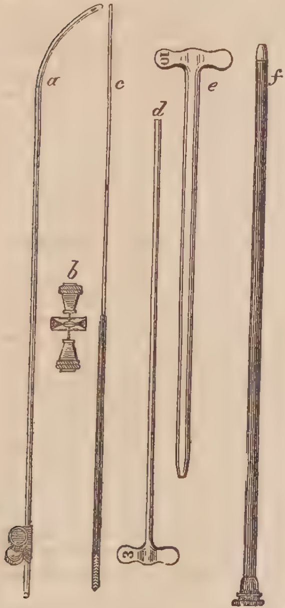
No. 1, (*a.*) The catheter, thirteen inches in length, with the thumb-slide fixed, of a very small size, slightly curved at the extremity; the stem quite straight, and having at the end a worm, for the reception of the screw of the connecting rod.

(*b.*) The small thumb-slide, (removable at pleasure), screwing closely upon, and acting as a handle to, the catheter. The utility of this must be evident. The surgeon can guide the point of the catheter more truly. It is removed when the index-rod is screwed on.

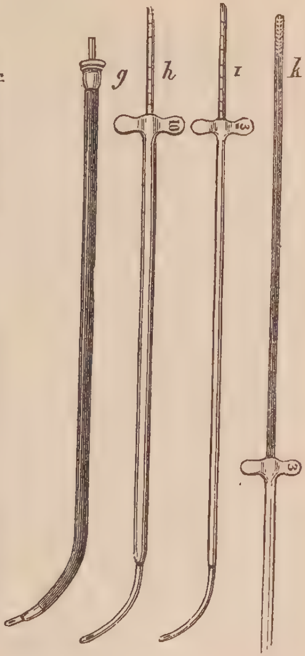
(*c.*) Steel rod, which passes into the catheter as far as the screw, at at which part both are united by two or three turns of the rod. The rod makes an addition of five inches to the length of the catheter. The rod and catheter combined form the index-rod, or director for the silver and elastic tubes.

(*d* & *e.*) Two silver straight tubes (Nos. 3 & 10); there are eight, of graduated sizes: the first is only one size larger than the index-rod, and the others regularly increase in circumference, corresponding with the numbers of the ordinary bougie. These tubes are nine inches long, are of a conical shape at their distal extremities, and are so constructed as to fit, with extreme exactness, the surface of the index-rod. They slide with the most perfect ease along that guide, and being directed by it if the catheter be through the stricture, the tubes cannot take a wrong course or make a false passage, but must pass along the index-rod.

No. 1.



No. 2.



(*f*.) An *elastic tube,* composed of a flexible metal, covered with elastic gum fabric. This combination gives to the instrument very considerable strength, without rendering it clumsy or bulky. The extremity of each of these flexible tubes has the same form as that of the silver tubes, and fits with perfect accuracy the surface of the index-rod. There are sizes of the elastic tubes corresponding with those of the silver tubes.

No. 2, *g*, exhibits an elastic metallic tube, (No. 7), running over *a*, the directing catheter, taking the curve of the catheter. Having introduced the elastic tube into the bladder, over the directing catheter, the latter is withdrawn, leaving the former in the bladder. *h* & *i* show the course of the silver tubes upon the directing rod. You have seen with what ease the tubes work over that guide. Upon the stem of the catheter you will observe a graduated quarter inch scale. This will always inform the surgeon at what part of the urethra the distal margin of the silver tube is passing over the directing-rod. The upper part of *h* & *i* shows a small portion of the steel rod, screwed into the catheter. *k* exhibits the upper part of *h* & *i*—viz., the steel rod, screwed into *a*, catheter, with *d*, silver tube, running over it; and having reached the turn of the catheter, indicates, by its position on the graduated scale, its arrival there.

I would now particularly enforce attention to the mode of applying the instruments which I have just shown and described, for the relief of permanent stricture of the urethra.

The catheter should be introduced with much caution and "lightness of hand," completely through the contracted part of the urethra into the bladder. This having been done, the stilet should be withdrawn, and the surgeon, satisfying himself, by the escape of urine, that the instrument is in the bladder, must then insert the smaller extremity of the steel rod into the catheter, and having secured it, by making two or three turns of the screw, remove the thumb-slide, and then pass No. 3 silver tube upon the index-rod right through the stricture or strictures. In performing this operation, the passage of the instrument will be much facilitated by giving to the flanges a rotatory motion as they are held between the fingers and thumb, and depressing the index-rod, so as to straighten the urethra as much as possible. This tube being withdrawn, the others may all be passed in a similar manner, and in regular succession. The number to be introduced must of course be determined by the operator. After the last metallic tube has been withdrawn, an important object can still be secured—that of *keeping the command of the pervious urethra.* This is a point of considerable importance, and is accomplished with the greatest ease, by passing one of the *elastic tubes* over the index-rod, as was done in the case of the silver tubes. The flexible tube being in the bladder, *the index-rod is to be withdrawn through it;* this can be done with the most perfect ease and facility. The *flexible tube* may be left in the bladder, to serve the purpose of a catheter, and it will also afford a safe channel or guide for the *re-introduction* of the index-rod. One of the great advantages of these instruments is, that the catheter once having been passed through the strictured part, the command of the free urethra may then be retained. In practice this must always be found of incalculable advantage.—*Lancet, March* 22, 1851, *p.* 315.

[At the meeting of the Medical Society of London, on Saturday 18th Jan., 1851, Mr. Wakley submitted his instruments to the consideration of the Society.]

He remarked, that the subject of the treatment of stricture of the urethra had been much discussed within the last year or two, and had given rise to a great deal of controversy. It certainly was not a settled question what should be done in cases of severe permanent stricture. Mr. Syme, the distinguished surgeon of Edinburgh, had, as was known, recommended, where the ordinary means of treatment had failed, the division of such strictures by perinæal section. Probably, the instruments which he then had the honour of bringing before the notice of the Society would, in some cases at least, render such an operation unnecessary. He had used them in several cases already with very satisfactory results. The instruments he at first used were by no means of a refined or perfect manufacture, yet the advantages obtained were of a decided character. The instruments he now produced had been manufactured by Messrs. Weiss & Co., and as might be expected, they were very perfectly executed.

The society would not fail to perceive that the action of these instruments was safe and simple, and he had the pleasure of stating that the use of them had given him very great satisfaction. The application of the knife for the relief of stricture had been much condemned, although it had been strongly advocated by Mr. Syme, who was undoubtedly a high authority. Still he (Mr. Wakley) could not refrain from expressing a belief that there were strictures which might be removed by the instruments now before him, although Mr. Syme might consider that in such cases the perinæal section would be absolutely necessary to effect a cure. Time and experience in the trial of both plans would be required to enable a decision to be formed as to their merits. Mr. Syme had remarked, in a letter published that day, that he had endeavoured to establish two positions: "First. That the division of a stricture by external incision, upon a grooved director, passed fairly through the contracted part, is an operation free from all ordinary sources of danger. Secondly. That, by this precedure, strictures which resist every other mode of treatment, and are apt to resent seriously even the gentlest use of simple bougies, may be speedily removed, so as to allow instruments of the largest size to be introduced without difficulty or inconvenience." The first proposition demanded particular attention, because he thought that the plan of treament now proposed, by tubular expansion, would, in many cases of stricture contemplated by Mr. Syme, render the perinæal section unnecessary. If the grooved director mentioned by Mr. Syme could be "passed fairly through the contracted part," of course the small-sized catheter or index-rod now shown could also be guided through the stricture into the bladder. Necessarily, if the one instrument could be passed, so could the other; and the passage being thus secured, the tubes, both metallic and flexible, might be made to take the same course, without the slightest danger of making a false passage. In some very obstinate and inveterate strictures he had succeeded in affording relief, almost without difficulty. Some of the strictures appeared to be of the worst possible form.—*Lancet, February* 1, 1851, *p.* 122.

[The instruments have been seen by Sir B. Brodie, Mr. Guthrie, Mr. Stanley, Mr. Fergusson, and other distinguished surgeons, who have approved of the principles of treatment which their use involves.]

## 94.—PRACTICAL OBSERVATIONS ON THE TREATMENT OF PERMANENT STRICTURE OF THE URETHRA.

By Robert Wade, Esq.

[In a paper read by Mr. Wade he endeavours to place the potassa fusa in its true and legitimate position as a curative agent. After paying a well-merited compliment to the late Mr. Whately, as the first surgeon who used the caustic potash in stricture, he proceeds to show in what respect his plan differs from that of Mr. Whately. He say,]

The distance of the stricture from the external orifice of the urethra should be marked on the bougie, and a small piece of potassa fusa inserted into a hole made with the point of the instrument. He usually commenced with a piece of caustic, of the size of a common pin's head, and gradually increased to quantity if required. In old, hard, gristly strictures, the author found it necessary sometimes to use from half to three-quarters of a grain. The points of the caustic should be well covered with lard, and the instrument well oiled, before using it; the armed bougie should be gently pressed against the stricture for a minute or two, if impermeable, and then withdrawn. When there is a false passage, and the obstruction is beyond the straight part of the urethra, the author uses a curved canula for the application of caustic. When the caustic is applied to permeable obstructions, the bougie should be gently passed three or four times over the whole surface of the stricture. From its being miscible with oily substances, the potassa fusa might either be used as a mild stimulant, or as a powerful caustic. Potassa fusa, when efficiently used for the destruction of a stricture, appeared to exert its salutary effects by a process of inflammatory softening, and dissolution of the thickened tissue forming the obstruction. A sufficiently free application, to be efficient in old hard strictures, is usually followed by more or less of a slimy muco-purulent discharge, at first with an admixture of blood, but soon becoming of a dirty-white colour. The author did not, like Mr. Whately, use the potassa fusa in all cases indiscriminately, but only in such as did not yield to simple dilatation. He found that the caustic not only required to be used more freely than practised by Mr. Whately, but that it might be advantageously applied at shorter intervals than recommended by that gentleman. He believed that when used in the minute quantities employed by Mr. Whately, that the action of the caustic was simply that of allaying irritation, as when mixed with lard and oil, combined with the mucus of the urethra, it could scarcely have have any effect beyond a mild solution of caustic, which probably caused a more healthy action of the lining membrane of the stricture. The cases in which the author had employed the potassa fusa advantageously were,—1st. Strictures of a cartilaginous hardness, and impervious to instruments. 2nd. Strictures of long standing, which, although admitting the passage of a small instrument, bleed more or less freely on its introduction. 3rd. Irritable strictures. It will be seen by these observations that the author regards the minute quantities recommended by Mr. Whately as totally inefficient in many of the more aggravated forms of stricture. The author then briefly detailed the particulars of some exceedingly interesting cases in which he had employed the agent in question. These cases embraced illustrations of severe, irritable, and old, hard, gristly strictures which had resisted every means which had been previously resorted to by other surgeons. The good effects of the potassa fusa were strikingly illustrated in these cases.

[Alluding to Mr. Stafford's plan of division of strictures by the lancetted catheter, he states his opinion that it must be considered at the least as somewhat hazardous, and even when this operation has proved so far successful that the bladder has been reached, it has often been found impossible to preserve the continuation of the advantage, the obstruction having recurred as bad as ever. With regard to Professor Syme's operation, he stated that it certainly was not always a safe one, and mentioned as a proof two published cases attended by fatal results.]

The author then alluded to the following conclusions from Mr. Syme's work on Stricture: "1. That division of a stricture by external incision is sufficient for the complete remedy of the disease in its worst form. 2. That in cases of less obstinacy, but still requiring the frequent use of the bougie, division is preferable to dilatation, as affording relief more speedily, permanently, and safely." (p. 58.) The author observed, that in some previous remarks upon this mode of treatment he had ventured to question the soundness of these conclusions, having expressed his doubts as to the new operation affording a permanent cure of stricture, for the following reasons:—1. That the thickened tissue is not removed by the knife in Mr. Syme's method, any more than in the one which had been commonly adopted in impermeable strictures. 2. That although a grooved director, in the new method, is passed into the bladder as a guide to the knife, yet the natural urethral membrane can form but a very small part of the enlarged passage, the greater part of this new channel being necessarily made through the condensed tissue at the seat of disease. The author then quoted the following passage from Mr. Syme's work: "It is now universally admitted that the bougie acts by exciting a degree of absorption of the thickened texture, which occasions the contraction and induration concerned in the formation of stricture. To produce this, the instrument should be employed with the utmost possible gentleness, and should not be allowed to remain in the urethra more than one or two seconds." The author, after observing that there was scarcely another surgeon at all experienced in the treatment of stricture who would not protest against such a frivolous use af the bougie, quoted the following passage from Mr. Hunter's work:—"The cure by dilatation is, I imagine, principally mechanical when performed by bougies, the powers of which in general are those of a wedge. However, the ultimate effect of them is not always so simple as that of a wedge upon inanimate matter, for pressure produces action of the animal powers, either to adapt the parts to their new position, or to recede by ulceration, which last is not so readily effected." The author went on to observe, that if a bougie was permitted to remain in the hard contractile strictures described by Mr. Syme but for one or two seconds, then, indeed, the knife must do the work which the bougie was not permitted to accomplish.

With regard to Mr. Syme's somewhat startling assertion, that there was really no impermeable stricture except from the awkwardness of the surgeon, the author had only to observe, that cases of stricture occasionally occurred in this metropolis, in which surgeons of the highest rank not unfrequently failed in passing an instrument into the bladder. He could readily conceive it possible for Mr. Syme, with a very small grooved director or sound, gradually to find his way to the bladder; but it appeared to the author that such an instrument would be more likely to pass by the side of the obstruction, where there is least resistance, than through it.

Dilatation will probably effect a permanent cure of stricture in its early stage before the occurrence of much induration. That method, when properly conducted, will also prove successful in the relief or cure of a great majority of strictures, notwithstanding the existence of much gristly hardness at the seat of disease. In such cases, however, there will be more or less tendency to re-contraction, for although the bougie may dilate the constricted channel to its healthy calibre, as indurated tissue is not easily removed by the absorbents, the obstruction will commonly return, unless prevented by an occasional introduction of instruments, the use of which may sometimes be necessary during the patient's lifetime. Caustic, when judiciously used, will often prove highly serviceable in facilitating dilatation; and in many cases, he knew that the application of potassa fusa would be successful in the entire removal of the disease. It is, however, in the treatment of obstructions impermeable by instruments that, in his opinion, consists in the indisputable value of the caustic alkali, as it had enabled him to succeed in the relief or cure of many cases, in which dilatation had failed, after long trial, in very skilful hands, and when the only hope held out to the patients was perinæal section—an operation which, he repeated, should never be performed whilst there remained a single chance of a successful result from less hazardous measures. He begged that these observations on perinæal section might mot be misunderstood; for although he had used his best endeavours to dissuade surgeons from having recourse to its performance, except in the very few cases that cannot otherwise be more safety relieved, it had been far from his intention to say anything in disparagement of operative surgery, which, when ably and judiciously employed, amply merits, and will ever obtain, the admiration of all who can appreciate the untiring industry and high mental qualifications necessary to form the accomplished operator. By gentleness and perseverance, however, in the means which he had ventured to recommend, in bad cases of stricture, the surgeon may rest assured that he will generally be successful, without resorting to the knife.—*Lancet, February* 1, 1851, *p.* 123.

---

## 95.—ON PARACENTESIS VESICÆ IN RETENTION OF URINE FROM STRICTURE OF THE URETHRA.

By Bransby B. Cooper, Esq.. F.R.S.

[Mr. Cooper in a clinical lecture delivered at Guy's Hospital, remarks, that although the operation of puncturing the bladder per rectum is recommended as the most simple and safe operation for the relief of retention of urine depending upon stricture of the urethral canal, yet its indiscriminate use would be highly prejudicial. He then proceeds to point out the cases in which he considers it ought, and in which it ought not, to be resorted to. He says,]

Surgeons admit three ways of performing the operation of paracentesis vesicæ; namely, puncturing above the pubes; puncturing through the rectum—or vagina in the female; and, lastly, cutting through the perinæum. Of these three, I shall exclude the first, as being, in my opinion, the most dangerous, the most liable to lead to the extravasation of urine, and the consequent formation of abscesses, and the most likely to be followed by injurious consequences, from the pressure of the canula on the coats of the posterior part of the bladder, when allowed to remain for some time, as is frequently requisite. If, then, this exclusion be just,—and, according to my experience, I hold it to be so,—it follows, that we have only a choice of one of two operations, and to one of these, a patient suffering under the distressing symptoms of retention of urine, with death inevitably staring him in the face, must submit to for his relief; and it should be the surgeon's object and consideration, not only to pass an instrument into the bladder, and evacuate its contents; not only to direct his attention to the time being, but to reflect, and select that operation likely to produce most permanent advantage. And this will entirely depend on the condition of the constricted parts giving rise to the retention. If the stricture have existed for a long time,—if the walls of the urethra have become thickened and cartilaginous, so as permanently to constrict and destroy the function of the canal,—if, indeed, from the circumstances of the case, you believe the stricture likely to persist, although the patient be, *pro tempore*, relieved of his retention,—I say, in such an instance, I recommend cutting through the perinæum. If, on the contrary, you have reason to believe, that, by alleviating his present symptoms, you may afterwards be able, by proper medical treatment, to overcome the stricture, then I advise the operation per rectum; so that your conduct must be guided by a consideration of the nature of the case you have to treat; and that operation which is adapted for the one, may, I hold, be highly prejudicial in the other. For I cannot agree with those surgeons who maintain, that if the source of irritation arising from the efforts at micturation be removed from the stricture, by substituting a new channel for the flow of the urine, that the amelioration of the obstruction will necessarily accrue; but, on the contrary, am inclined to believe, that the cartilaginous stricture, or, indeed, in any kind in which the stricture of the urethra is much altered, will, so soon as the flow of urine is made to pass through another course, begin at once to form a permanent obliteration of the canal; as we invariably find that, under all circumstances in which an organ is thrown out of its natural function, that it soon begins to undergo a deteriorating process, which renders it incompetent to be restored to its natural use. This doctrine does not, however, hold with respect to sporadic spasmodic stricture, and therefore the palliative treatment of puncturing the bladder per rectum may, in such case, be most usefully had recourse to.

The operation of paracentesis per rectum is an exceedingly simple one, but on account of its simplicity, it is not, therefore, to be performed carelessly; for; if so, it might be followed by most serious consequences, if not loss of life. The most simple operation in surgery requires the exercise of care and judgment, and is never unattended with some amount of danger. In describing the operation, it will be necessary just to advert to, and bring to your recollection, the anatomical relation of the parts in the pelvic region.

You are fully aware the most important organs contained within the male pelvis are the urinary bladder and rectum, and that these organs in different positions of the body bear different relations to each other. The posterior surface of the bladder is entirely covered by peritoneum, the continuation of the layer descending on the anterior wall of the abdomen, which, being prolonged to the posterior portion of the base or fundus of the bladder, is reflected backwards to the anterior part of the rectum, thus forming a *cal de sac*, known as the recto-vesical pouch. In front of this reflected membrane, the base of the bladder comes closely in contact with the rectum, being separated only by fibro-cellular tissue and recto-vesical fascia, a portion of the pelvic fascia which descends into the pelvis to retain its contained organs in place. The bladder here presents a triangular surface, corresponding in situation to the trigon in its interior, the apex of the triangle being directed forwards to the prostate gland, and its sides bounded by the vasa deferentia and vesiculæ seminales. It is in this triangular space that the trocar and canula should be introduced, and where, it will be seen, it can be employed with scarcely any danger of wounding the peritoneum; for, as the bladder becomes distended in retention, it carries with it the peritoneum, thus placing it almost out of the reach of the instrument, and there will be little fear of injuring the vasa deferentia or vesiculæ seminales, if the point of the trocar be kept in a direction towards the median line. Bearing these considerations in mind, place your patient on a table, with his pelvis well raised before you, and in the same position as that required for the operation of lithotomy; then, introducing the index finger of the left hand into the rectum, pass along it the canula, furnished with a "pilot-plug," until it reach opposite the triangular space of the bladder, which I have just described to you; withdrawing the pilot, and depressing the canula, until it assume the direction of a line with the umbilicus, pass in the trocar, and force the two onwards into the bladder. The operation is attended with but little pain; indeed, the chief pain is occasioned in endeavouring to introduce the canula without the "pilot plug," an addition to the instrument which is of great practical advantage; for, without it, the end of the canula seems to catch in the mucous membrane, and to produce such contraction of the bowel as to prevent its onward progress; with it, however, no such difficulty exists, for its smooth, rounded extremity readily passes within the rectum, and pilots the way for the canula. To insure success in the operation, the chief circumstance to be attended to is, in thrusting the trocar and canula forwards, to keep the point well elevated or the handle depressed; otherwise, it may pass between the bladder and rectum, and, on withdrawing the trocar, the operator may be extremely mortified to find no fluid following it.—*Med. Times, Feb,* 15, 1851, *p.* 168.

96.—*Retention of Urine in a Child Twenty Months Old from Injury, Puncture of the Bladder above the Pubis,—Rapid Recovery.* (Under the care of T. H. Wakley, Esq.—[The ordinary cases of retention of urine are chiefly arising from obstinate strictures in adults, and have certain rules of treatment. But if it is produced from injury, the treatment must be determined by the circumstances of the case, and more especially so, if, as in this case, the patient is a child of tender years. Two days previously the child had fallen down an area, the perinæum coming in contact with the ground. On admission, the countenance is described as being full of anxiety, the limbs motionless, and the pulse 115 and weak. All the ordinary means to favour the introduction of the catheter were of no avail, and the instrument could not be passed.]

The child was now quite insensible; the respiration rapid and laboured; the pulse 125, very weak, and almost imperceptible. Mr. Wakley therefore considered that no more time should be lost in attempts to render the urethra pervious, and determined to puncture the bladder above the pubis. A glance at the situation of the child will show that the pubic operation was almost the only one which could be selected. As there was no stricture, there existed, of course, no distended membranous portion of urethra which could conveniently be punctured, and as for the rectum, the "soft mass at the commencement of the prostate gland," which stopped the catheter, was no encouragement to resorting to the rectal operation.

Mr. Wakley, therefore, punctured the bladder over the pubis in the usual manner, assisted by Mr. Robertson: a very considerable quantity of high-coloured offensive urine was drawn off, and the canula kept in its place by a bandage running round the waist. The sequel will show that leaving the canula in the wound was not productive of any inconvenience, but, on the contrary, followed by the best results. The elastic catheter is recommended by some surgeons, but the urine has been known to pass between it and the wound, and excite inflammation in the peritonæum. A large poultice was placed over the abdomen and peritonæum, and the child carefully placed in bed.

In the evening the little patient became conscious and restless for two or three hours, but he soon fell asleep, and slept nearly through the whole night. The canula was kept in the bladder for three days, and the urine drawn off at intervals. After this period a catheter was easily introduced into the bladder, and the canula being now no longer required, was withdrawn. The wound healed very rapidly, the urine continued to flow through the urethra, and in eight days the child left the hospital.—*Lancet, Nov.* 23, 1850, *p.* 580.

---

97.—*Case of Prostatic and Vesical Calculi,—Lithotomy,—Unusual Position of one of the Calculi.*—Under the care of J. Erichsen, Esq., Surgeon to the University College Hospital.—Reported by Henry Thompson, Esq., House Surgeon.—[The patient, W. W., aged twenty-three, was admitted on the 2nd of October, 1850. On examining the urethra with a sound, some rough hard substance was discovered in the prostatic part of the urethra, with here and there concretions, one being apparently as high up as the fundus, and fixed. On being injected with warm water the bladder was found incapable of holding more than three or four ounces, and on further examination a calculus was found which appeared to lie high up, distant, and towards the right side, and to be of considerable size. The urine was found pale, straw coloured, clear, faintly ammoniacal, specificgravity 1017, little pale deposit; under microscope, many crystals of tribasic phosphates; few pus and granular corpuscles; albumen not large, but more than the presence of pus would account for. Mr. Erichsen decided upon operating, and on the]

9th.—The bowels having been cleared by a brisk purgative, an enema was given at noon. *Operation.*—Two p.m.: Chloroform having been given in the ward, the patient was brought into the operating theatre. Four ounces of warm water were thrown into the bladder, and the staff was introduced. The stone, however, could not be discovered with this instrument; it was therefore withdrawn, and a sound passed. By careful searching, and depressing its handle, the stone could be felt, apparently above and behind the pubes. The sound was now removed, and the staff introduced. Mr. Erichsen then stated that he expected to meet with considerable difficulty in the extraction of the stone, owing to its unusual position, as shown by the way in which it was necessary to carry up the point of the sound round the pubes to find it.

The patient being bound, a free external incision was made in the usual situation, and the urethra and bladder were opened by a limited internal incision. On introducing his finger, Mr. Erichsen felt two or three small calculous masses at the bottom of the bladder, and removed them with the forceps, but he could not reach any large stone thus. On passing the forceps, however, nearly perpendicularly upwards behind the pubes, the lower end of the stone could be felt, and was grasped, but the forceps slipped repeatedly, it being impossible to get a firm hold of the calculus, the lower end of which only could be felt, and which appeared to be lodged in a kind of pouch, being firmly embraced by the contracted bladder. The operator then directed an assistant to press firmly on the abdominal parietes above the pubes, so as to bring the stone more within reach; this was done when, by means of the curved scoop, worked round it, between it and the side of the bladder, it was brought down, and at length extracted by the forceps, but broken into three or four pieces. The bladder was then injected with warm water, a tube introduced, and the patient put to bed.—Eight P.M.: He is still somewhat under the effects of the chloroform, being drowsy and incoherent; pulse 108, very weak; tongue dry; urine passes freely by the tube.

[On the evening of the 10th no urine passed the tube, and he was found evidently sinking; the tube was removed from the wound; the pulse gradually grew weaker, and at four the following morning he died. There were two interesting and important features in this case, viz., the absence during life of any prominent symptoms indicating the extensive disorganization of the kidneys which was found after death, and the peculiar position of the stone in the bladder. With regard to the latter Mr. Thompson remarks:]

There are some cases on record, in which, notwithstanding that the bladder has been dextrously entered, and carefully explored, the patient has been sent away from the operating-table with the stone unremoved, still free within the viscus, *i. e.*, not encysted. It is by no means improbable, that many of these have had for their cause a condition of things similar to that described in the case before us. The concretion becomes either temporarily or permanently lodged in the upper fundus, behind the pubes, and thus eludes the grasp of the forceps. And the origin of this seems indicated in the history given above. There had been incontinence for nine months previous to his admission, consequently there was, as far as the retaining of urine is concerned, absolute loss of function, by the upper portion of the bladder; it may therefore contract, and become fitted to form a kind of pouch, for any concretion which may get there. Once lodged, it is not difficult to conceive how its rough external surface may attach it closely to the mucous membrane in contact. With the stone in such a position, it is clear that the forceps will at first not discover it; they must pass in a direction almost at right angles with the axis of the incision, greatly increasing the difficulties of manipulation, and then, probably, will rather force the stone up behind the pubes than grasp it between their blades. Ascertaining this to be the situation of the calculus in the present instance, Mr. Erichsen directed pressure to be made immediately above the pubes, and succeeded, by this manœuvre, in accomplishing its extraction, with the aid of a curved scoop.

This, however, is not the first time in which such treatment of the difficulty has been successfully adopted. Two some-what similar cases are reported in the 'Medical Gazette' for August 15, 1845, as having occurred in the practice of the late Mr. Aston Key. It is there said of of them, that "the attempt to extract the stone would have been abortive, had not he (Mr. Key) directed pressure to be made above the pubes, so as to bring the calculus within the grasp of the forceps. The handles of the forceps, though depressed as much as the wound would allow, could not carry the blades high enough to reach the stone, and it required very firm pressure on the lower part of the abdomen to depress the stone sufficiently to enable the forceps to seize it. As soon as firm pressure was made the stone could be felt to descend between the blades of the forceps." Again,—"It is in the retreat of the stone before the forceps that the difficulty of seizing it lies: the stone, instead of retreating in a direct line from the opening into the bladder, ascends behind the pubes, where the forceps cannot, without assistance, reach it, much less grasp it."

Of these two cases, the present report forms an excellent illustration. Taken together, they are most valuable, as affording a solution to one of the many difficulties which the lithotomist may be called upon at any time to encounter. The utility of making abdominal pressure under the circumstances described is not alluded to in any systematic work on the subject; nor has there been any recommendation or report of it, that I am aware of, excepting the one above quoted, and it is on this account that special attention has been called to it, and its importance referred to in the foregoing remarks.—*Lancet, November* 23, 1850, *p.* 575.

## 98.—ON LITHOTRITY.

### By CHARLES HAWKINS, Esq.

[At a meeting of the Pathological Society of London, Mr. Hawkins made the following observations on some very interesting preparations before the Society, illustrating a very important point of practice, with regard to the operation of lithotrity.]

It had fallen to his lot to see the operation of lithotrity performed in private practice several hundred times, and in the course of this experience he had only seen this accident occur four times. In two the fatal result (as shown by the preparations now before the Society) had been averted by the timely cutting down on and removing the impacted stone, and by thus making an external opening into the urethra, avoiding all the unfortunate results of a piece of stone lodging in a lacerated portion of that canal, such as infiltration of urine and abscess, certain results of such an accident, if no external opening be made, and the piece of stone remaining in the urethra. But he believed this accident might be entirely avoided, if the operation of crushing be performed with the lithotrite,—that is, if the operator is satisfied with crushing the stone and not attempting to withdraw the fragments between the beaks of the instrument. He believed this accident never occurred except where the urethra had been lacerated with a piece of stone, during the withdrawal of the instrument; then impaction of a fragment led to the results which the preparations exhibit, but where the urethra has not been lacerated, impaction is of little importance, and no dangerous symptoms are likely to result from such an occurrence. At least this was the result of his experience. Since no attempts have been made to remove fragments from the bladder in the instrument, he had met with no such accident. Impaction, when the urethra is not lacerated, does occasionally occur, but with care all danger may be avoided. He had removed as much as half a wine glassful of detritus by means of a small silver scoop, without any difficulty, in a late case under his care. He had been obliged to remove a large portion of the stone by this means; indeed, so easy was it, that this patient uses the instrument himself in the same manner.

He believed that the result as shown by the preparation was merely the result of the urethra having been lacerated, and stones becoming impacted in some rents, and not that the laceration of the urethra was caused by the stone becoming impacted. He had never seen any danger arise where there had been no bleeding from the urethra following the operation. As far as his experience went, it was not necessary to attempt the removal of the stone in the scoop—lithotrite. If the stone is *well crushed* it may be left to nature for the bladder to be evacuated of the fragments, or where there was a difficulty in passing them, he had removed much by means of washing out the bladder. This accident had never occurred in his own hands. Abscesses will form in the neighbourhood of the bladder after lithotrity, where there has been no *impaction*, nor larceration, nor the least injury of the bladder or urethra. —*Med. Gazette, Jan.* 3, 1851, *p.* 29.

99.—*On Hydrocele.*—(From the Clinical Reports). By Professor SYME. The operation for hydrocele, practised here, is, I think, fairly entitled to the character of perfection in regard to simplicity, facility, and efficiency. It is executed by injecting a teaspoonful of the tincture of iodine, by means of a common sixpenny pewter syringe, which answers the purpose not only as well, but, in my opinion, much better, than the expensive and fragile toy that would be put into your hands, if you were to seek the assistance of a London instrument-maker. To appreciate the advantages of this most simple procedure, you should be acquainted with the newest fashion of Parisian practice, promulgated about six weeks ago, not by any obscure or doubtful authority, but by the medical inspector-general of the French army, surgeon of the great hospital of the Val de Grâce—M. Baudens.

This distinguished gentleman begins the process by preparing his patient, through means of suitable diet, baths, and purgation. He then employs a sort of pasteboard telescope, and candle, to ascertain the position of the testicle, and next punctures the hydrocele with a lancet, to let a sufficient quantity of fluid escape for rendering the bag so flaccid that a portion of it may be compressed between the operator's finger and thumb. Through this he thrusts the trocar, bringing its point fairly out on the side opposite to that on which it enters. He then takes out the trocar, and leaves the canula, which, having a hole in its side, allows the remaining fluid to escape. The canula being secured in its place, air is blown into the cavity of the tunica vaginalis, and retained by a plug. This process is repeated three or four times, with the interval of as many hours. Next day, another series of injections of water takes place,—each being preceded by an insufflation of air, to clear the passage. On the day following, a third course of the same kind is executed, with the difference of wine, or a solution of nitrate of silver, being the agent employed ; and so on until the requisite degree of excitement is induced. In one case, gravely related by the author, air, water, wine, and nitrate of silver, were injected during the first four days, and an injection of tincture of iodine, in the ordinary way, on the fifth, at which period the patients treated here are usually dismissed from further restraint. If this proposal were merely puerile and absurd, or useless and inexpedient, it would hardly deserve notice; but being, as I believe, not free from the danger of serious consequences, if applied to the irritable systems of patients treated in private practice, it merits, in my opinion, the most unqualified condemnation. You should beware of supposing that that which is newest is also the best, and may see, from what I have just stated, that deference to mere date or name is an unsound foundation for professional opinions. It used to be thought essential for the completion of medical education, that a season should be spent in Paris. I am not sure how far an abstract desire of professional information may have always led to the representations for this purpose, but think it right to tell you, in order that your present opportunities may not be mis-spent, what sort of improvements you are to expect, in the event of going abroad in search of them.—*Monthly Journal of Med. Science, March, 1851, p.* 291.

100.—*On the Treatment of Pruritus of the Genital, Anal, and Axillary Regions.* By Dr. TOURNIE.—[By the general term pruritus, prurigo, lichen, or eczema are often confounded in the cutaneous affection, the itching being nothing more than a symptom, and after existing without any other characters, without constituting a true disease, this unpleasant affection may, in nervous people, sometimes determine consecutive symptoms of manifest importance. The most successful results obtained by Dr. Tournie have been from the following plans of treatment.]

1. An ointment of calomel, in the proportion of from four to six parts of calomel to thirty of axunge. 2. A powder, composed of four-fifths of starch and one-fifth of camphor, well pulverised and mixed. We may, however, in the ointment, increase the proportion of protochloride of mercury; and, in the powder, the dose of camphor, according to the obstinacy of the disease.

The mode of application is as follows:—If the diseased parts are covered with scales or dry crusts, as in eczema, then separation is promoted by cataplasms and emollient baths; having accomplished which, he applies, twice a-day, frictions with the foregoing ointment, and after the frictions, sprinkles the parts with the mixture of starch and camphor.

The ointment alone is inefficacious; and the camphorated starch, without the assistance of the ointment, allays the itch, but does not effect a cure. Experience has proved this.

The following are the cases of which he has reported the details:—1. Prurigo of the labia majora and vulva—intertrigo. 2. Lichenoid affection of the labia majora—intertrigo. 3. Chronic eczema of the scrotum. 4. Lichen in axillary region. 5. Itching of anus. 6. Ditto, do. Besides these, he notices three other cases of perfect cure by this treatment, two of lichenoid affections of the anus in men, and one of prurigo of the labia majora in a woman. He does not give the details of these last three cases. In one only—namely, that of the fourth case—was it necessary to increase, in a notable manner, the doses of the calomel and camphor; in all the other cases, the ordinary formula was sufficient to produce a cure.

When the itching of the anus is caused by the presence of ascarides, the calomel and camphor are less efficacious; but he has recourse in this case to mercurial ointment, and often verified its vermicide effects on this species of worm.

The state of pregnancy seems to neutralize the action of the therapeutic means, the success of which he has recorded above. Thus the itching of the genitals in two pregnant females proved intractable to every kind of treatment. In one only venesection seemed to allay the itchiness a little; but in the second it produced no effect;—in both, the itching disappeared immediately after delivery. In these two cases the itching had commenced during pregnancy; and it existed without giving the vulva any appearance of a lichenoid or pruriginous eruption.

Dr. Maslieurat-Lagémard has published, in the 12th No. of the "Gazette Médicale," for 1848, page 204, a very curious and remarkable account of a general itching supervening, without eruption, in the course of eight pregnancies, in one of his patients. This did not commence till after the sixth month, and no treatment appeared to alleviate the violent itchings, which during the eight pregnancies resulted six times in premature deliveries.

In Dr. T.'s hands the combination of calomel ointment with the powder of camphorated starch, in the treatment of itching of the hemorrhoidal region, has given results which no other treatment has ever obtained in so constant a manner.

Every practitioner who has been consulted for these affections has been obliged to direct himself to formulæ of great variety, before hitting on a successful expedient. In illustration of this, it is sufficient to relate the summary of five observations published by Dr. Ruan, in 'Hufeland's Journal.'

Of these five cases, two were treated without any success by purgatives, diuretics, opium in large doses, Goulard's extract, and solution of borate of soda; intractable to all these means, they were cured by the balsam of copaiba.

In a third case, the copaiba, which had succeeded in the two first, was inefficacious; whilst the borax, which had failed in the others, caused the itching to disappear in this case.

A fourth case resisted the divers means employed for the three first, and gave way to the administration of the subcarbonate of soda in small and repeated doses.

The fifth case resisted every treatment.—*L'Union Médicale.—Monthly Journal of Med. Science, April,* 1851, *p.* 373.

## SYPHILITIC AFFECTIONS.

### 101.—ON SYPHILIS.

By Bransby B. Cooper, Esq., F.R.S.

[Though the following remarks may not have attached to them any peculiar amount of interest, they are at least useful and instructive as affording us examples of cases which we have to encounter in private practice. Speaking of the definition of the stages of this disease, Mr. Cooper remarks:]

If I might be allowed to express my own opinion on the subject, I would give the following definition of the three stages or forms of syphilis: Primary symptoms—the chancre or local affection; secondary syphilis—the sore throat and the various cutaneous eruptions; and tertiary—the ulcers and sores which succeed the eruptions, and which, like them, are the result of the constitutional manifestation of the disease.

The diagnosis of a primary syphilitic sore or chancre is sometimes exceedingly difficult; in fact, taking the physical characters of the ulcer alone, it is frequently impossible to distinguish it from one of a non-specific nature,—frequently out of the surgeon's power to say with decision and confidence this is venereal, or that is not. If, then, gentlemen, we can go into our wards, and in one patient pronounce with certainty, and without the least hesitation, his sore to be specific; and in another, be unable to give a decided opinion either way, or to point out any definite characters why it should or should not be considered venereal,—I say, if such be the case, the appearances that primary sores assume must be very varied and indefinite, and as yet latent to our discriminating powers; and so they are. What, then, does this variety, this difference in external appearance, result from? Does it depend on a variety of the syphilitic poison itself? No. There is but one true poison of syphilis, which poison produces different effects, depending on the nature of the tissue affected, and on the peculiarity of the constitution; and I believe, that all the different effects, and all the varieties of sores, depend on one and the same morbific cause, the action of which is modified by the particular state or disposition of the individual in which the symptoms are developed. From this it is that syphilis, notwithstanding the attention that has been devoted to it by so many distinguished and able men, yet remains one of the most obscure and difficult subjects that the surgeon has to encounter.

With regard to the treatment of primary symptoms we possess, happily, a remedial agent—mercury, which might be considered to have almost a specific influence over the disease, and I believe that syphilis cannot be thoroughly eradicated from the system by any other medicine, after absorption has taken place and it has become a constitutional affection. If, however, you have a patient come to you within four days after the appearance of a chancre,—that is, before the syphilitic poison has had time to become absorbed, and implanted in the system, no matter if the sore be of the callous or true Hunterian description, or however ambiguous its characters, by the application of concentrated nitric acid you would effectually decompose or destroy, and render inert the specific poison. By these means, and these means alone, I feel confident you would extirpate the disease, and at once cut short its further progress. I have now had several cases, in which I have adopted this treatment; and, as far as I know and have a right to believe, in each it was attended with success. Four of the patients I have seen since, and I know they have had no re-appearance of the disease; whilst the others I have lost sight of, but have no doubt should have heard of them again had it not proved successful.

After the venereal poison has had time to become absorbed, and to be diffused through the system, the surgeon has two objects in view: one to procure a resolution of the local inflammatory action, and promote the healing of the sore: the other to subdue and annihilate the disease in the system, and prevent its recurrence under a secondary form. This I think is most effectually, I may say only effectually and securely, to be accomplished by treating the chancre through the constitution alone, and submitting the patient to a course of mercury, employed with caution and discretion. I do not mean, however, to deny, that a syphilitic sore—a genuine chancre—will subside and heal up under other, and under even simply local treatment. I say, I not only do not dispute it, but am convinced of its truth. But, at the same time, I do not consider the disease eradicated, nor do I consider the patient secure from the development of secondary or tertiary symptoms. The healing of a chancre, by the application of local means, is no proof of the constitutional subsidence of the disease. If, then, a chancre will heal under the influence of topical agents whilst the disease still exists in the system, we have it explained how it is that secondary symptoms afterwards appear, although mercury has been given in the treatment of the primary disease; for local remedies are almost always at the same time enjoined. It is here lies the secret, in ensuring security to your patient from a recurrence of the disorder, and a solution of the difficulty experienced in determining when an efficient quantity of this powerful but invaluable medicine has been exhibited, to attain the object in view, and in knowing when to stop with safety and security from all further or future appearance of symptoms. I therefore depend solely on the constitutional employment of mercury, and object to the use of black wash and similar applications, which are in themselves capable of removing the sore, and thus destroy the index which its appearance forms when its reparation is effected, only as a result of the constitutional eradication of the disease. The healing of the sore under these indications is an evidence that the system has been sufficiently mercurialized; and that its use may now be confidently abandoned. Acting under this principle and conviction, the plan I in almost all cases pursue, is to apply a simple piece of moist linen—not lint, for I have seen it (whether from the chlorine used in bleaching it, or what, I do not know) excite such irritation round a chancre, as almost to produce balanitis, which all quickly subsided on the use of linen instead of lint to the sore, and administer internally gr. v. of blue bill with $\frac{1}{4}$ gr. opium at bedtime, and v. gr. of blue pill alone in the morning; directing these pills to be made up separately, and labelled respectively "night" and "morning" pills. I tell the patient, if his bowels become constipated, to take only the "morning" pills both night and morning; if, on the contrary, relaxed, to take only the night pills. With this variation in treatment, according to the circumstances of the case, I continue the mercury until the sore has disappeared, and the hardness of its base subsided. I learned this this treatment from my uncle, Sir Astley Cooper, and have adopted it in almost every case that has come before me during the last thirty years; and I have never yet once got into a difficulty with it, from the reappearance of the disease under secondary symptoms. Trust to mercury, but give it cautiously, give it judiciously, watching your patient during its administration, and seeing that he avoid all possible exposure to cold, and if possible keep him within doors. The remedy itself is a poison, and, if improperly employed, might inflict as much or more injury on the patient than the disease it was intended to cure.

Secondary symptoms are manifested in various morbid phenomena of different parts, more especially of the skin, mucous membranes, and bones. Affections of the latter, I believe, are not the result of syphilis alone, as a specific disease, but of its action, modified by the influence of mercury, which, as far as I can learn, in such cases has always been previously administered; and I consider syphilis of itself, I will not go so far as to say incapable, but certainly not as yet proved to have the power of producing such direful morbid conditions of the osseous system.

I have had an opportunity of witnessing cases of syphilis, that have proceeded for a long time uninfluenced by any remedial agent, in sailors engaged in the merchant service, who, having contracted the disease, have gone to sea, where they have remained for some months in a vessel with no surgeon on board. In these cases the disease has gone on as an ulcerative process; the chancre has spread, there has been ulceration of the groin inside the thighs, and over the pubes, but not an indication of the affection of the bones.

With regard to the treatment of secondary syphilis, the iodide of potassium is the remedy held in most repute, and the one that in general produces the most immediate beneficial and successful results. But, according to my experience, iodide of potassium and iodine, although they have the power of arresting or suspending the disease *pro tem.*, are incapable of eradicating or eliminating it *in toto* from the system, and securing the individual from subsequent attacks. Sir Astley used almost invariably to prescribe the bichloride of mercury, in doses of 1-16 gr., taken in bark or sarsaparilla, two or three times a day; and I myself prefer and recommend mercury to be given. It is true, its remedial effects are not so speedy as those of iodide of potassium; but this is more than compensated for by their being of a more permanent character. Cases sometimes occur where iodide of potassium has been administered for some time, and the further continuance of its use increases instead of diminishes the symptoms it was intended to relieve. In such instances, I have sometimes seen the most marked effects accrue from small doses of arsenic, especially when combined with mercury and iodine, in the form of the liquor arsenici et hydrargyri hydriodatis, or Donovan's solution.

[It was clear in the case before them that the mercurial treatment was abandoned before the symptoms thoroughly yielded. After this he was iodised and mercurialised frequently, but with no ultimate benefit. Had he been a strong man, Mr. Cooper said he would have given him mercury, and used every precaution. But being of a depraved constitution and weak, he ordered him,]

℞. Iodinii, gr. ss.; potassii iodidi, ʒss; syrupi papavaris, ℥ss; infusi gentianæ co., ℥x.; misce, ut fiat mistura, cujus sumantur, cochl. ij. magna ter die, cum morphiæ acet. gr. ss. omni nocte.

I pursued this for a few weeks, and at the same time enjoined perfect rest in bed, but found little or no improvement in the sore; which, as is the character of the specific kind, healed in one part, but extended itself in another. At the same time, a number of tubercles appeared over his head and face, which are anything but a favourable indication of the condition of his system. Tubercles and blotches—the difference between the two being, that the former are elevated, but the latter even with the surface of the skin—may depend on other causes than syphilis; but, as a result of this disease, they are always unmistakable from their coppery hue, their smutty or dirty appearance, the skin in fact conveying the impression of its wanting to be washed. It might be asked, why is it, if the whole system be impregnated alike with a poison which is circulating in it, that we do not have a universal eruption or sore, for it follows that all parts of the body must be equally under its influence? I do not see that this can be explained otherwise than by saying, that it must arise from some weakness or exciting cause in the part affected, which does not exist elsewhere. Seeing that he made no progress under the influence of the medicines prescribed, I altered them, and gave him.

℞. Liq. hydriodatis arsenici et hydr., ʒjs.; extracti sarzæ, ʒj.; dec. sarzæ co., ℥viij.; cochl. ij., amp. ter die sum.; pulv. opii. gr. ss. omni nocte.

And since then, I must say, he has been slightly improving. The sore has a more healthy appearance, and does not seem extending, and the tubercles on his face are apparently subsiding and dying away. But I am not sanguine of his speedy recovery, and know that it must be a work of time before it can be effected, if ever he gets well again.

In concluding these remarks on syphilis, I may observe, that in sloughing phagedæna, mercury has the effect of aggravating rather than mitigating the symptoms, and is consequently decidedly prejudicial; the remedies are the topical application of nitric acid, and the internal administration of opium. Nitric acid not only destroys the part in contact with it, but, at the same time, induces a more healthy action in those beneath.—*Med. Times, Jan.* 18, 1851, *p.* 55.

---

102.—*Ulcer in the Groin,—Syphilitic?—Constitutional Treatment,—Cured by Mercury.—Conservative Influence of the Lymphatic Glands.* —By John Hilton, Esq., F.R.S., Surgeon to Guy's Hospital.—[The ulcer in this case occurred in the person of a gas-pipe layer, who, six months before admission, struck his shin against a gas-pipe, and soon after discovered a swelling on his left groin; this gradually increased in size, and ultimately broke, discharging no fluid, presenting the appearance of a crack or fissure, which gradually increased in size. He was ordered Plummer's pill and extract of henbane, five grains each, every night, and the solution of the bichloride of mercury one drachm, with the decoction of sarsaparilla, three times a day; yellow wash to be applied to to the part. Three weeks from this date we find his gums have been affected for two days, and the ulcer is much smaller and has a much healthier aspect. This case shows us how a disease may continue for a long period uninfluenced by any local plan of treatment, it being kept up by a constitutional taint in the system, which, when recognized, readily yields to the exhibition of constitutional remedies. One would naturally, on seeing an ulcer in the groin, suspect syphilis as its cause, but in the present instance the man denied its previous existence strenuously, and attributed it solely to the blow on the shin. If we regard the original wound in the leg as the exciting cause of the ulcer, it must have been by producing absorbent inflammation, which extended to the lymphatic glands in the groin, with which the absorbents of the leg directly communicate. By the term absorbent inflammation, we mean an inflammatory condition of the lymphatic or absorbent vessels, depending upon the presence in them of an irritating fluid, which extends to the nearest lymphatic gland by means of their continuous tubular arrangement.]

Now these enlarged glands, with which the absorbents communicate, must be regarded *as the result of a highly conservative act*, in reference to the constitution or general health, by tending to arrest the progress of the morbid fluid on its way to the blood, so as to prevent its entering into the general circulation and poisoning the whole system: the poisonous and morbid influence being exerted upon the glands themselves, gives rise to inflammation and abscess of the surrounding tissues. This wise provision must be regarded as a means of arresting the rapid extension of malignant disease through the system: thus. for instance, in malignant disease of the hand, or arm, or breast, when it has existed for some length of time, we find that the axillary glands become enlarged,—a conservative act, tending to prevent the passage of the malignant cells into the general circulation; for if these morbid cells were permitted to mingle with the blood, so as to be carried floating in it to the centre of the circulation, they would be liable in their passage through the minute circulation of the lungs to become there arrested, and either to engender, as it were, a like disease in surrounding structures, or form a nidus for a malignant growth, which, increasing in size by the development of new cells, gives rise to a disease of a similar nature to the original morbid growth, but which now assumes a more serious aspect from occurring in an organ where its rapid growth interferes with important functions, and leads consequently much sooner to a fatal termination. Morbid fluids and products, however, are not only propagated through the medium of the lymphatics, but also by the veins, which is attended with far more danger to the patient, and is more speedily fatal. But you will perhaps ask, why this should be followed by a more dangerous result than when the poison is taken up by the lymphatics? The reason is this:—In the veins there essentially is no conservative apparatus like that we have been speaking of in the lymphatic glands; consequently there is nothing to retard the free passage of the morbid fluid from the original source into the general circulation, or to prevent its immediate mixture with the blood: the blood speedily becomes poisoned or inoculated by it, giving rise to phlebitis or inflammation of the venous tubes, leading to consecutive inflammation and suppuration in other parts of the body, and attended with that extreme constitutional depression so common in these cases. There is, however, a kind of conservative action in the veins, which is this: when, during the progress of ulceration, pus enters a vein, the blood may become immediately coagulated, and obstruct the vessel, by forming a plug, thus preventing the passage of the pus with the blood towards the right side of the heart: but if, however, the quantity of pus is not sufficient to produce coagulation of the blood, this conservative influence is lost; the pus becomes mingled with the blood, and passes into the larger veins; is carried into the heart; and either becomes arrested in the capillary circulation of the lungs, or else in the course of the aortic circulation is lodged in the systemic capillaries; and thus gives rise to abscesses in different parts of the body.

Having explained to you how a lymphatic gland may inflame, suppurate, and ulcerate, in consequence of morbid fluids being carried to it by the direct tubular communication of the absorbent vessels between it and the seat of injury, we now come to consider the precise character of the ulcer in the case before us—to endeavour to arrive at a proper conclusion with reference to the mode of treatment to be adopted; the ulcer discharged an ichorous fluid, its edges were hardened, raised, irregular, and inflamed: there was also hardness of the integuments around. Could it be of a malignant nature? There was no evidence of this, The general aspect of the ulcer was decidedly non-malignant, neither was it attended with that lancinating or shooting pain so frequently met with in cases of this class of disease. Again: was it a common ulcer, deriving its peculiar appearance from being modified by a constitutional cause, such as a syphilitic taint? The history was strongly against any complication of this sort; for although repeatedly questioned, the patient always strenuously denied ever having had such a disease. But can this assertion be relied on? We know that cases are frequently coming under observation in which, judging from the character of the ulcer alone, no doubt can be entertained respecting its specific origin, and yet patients will protest against it to the last, even although our diagnosis may have derived additional strength and confirmation from such an ulcer yielding only to a mercurial plan of treatment.

It is important to remember that simple wounds occasionally assume a specific character when occurring in persons whose constitution has been previously poisoned by syphilis.

Instances are occasionally met with in practice of specific or syphilitic ulcers in the groin or any other part, presenting highly characteristic features without any existing evidence of a primary sore, amenable to appropriate remedies, and curable only by specific treatment.—*Med. Gazette, February* 28, 1851, *p.* 353.

---

## 103.—ON SYPHILITIC ERUPTIONS.

### By Thomas Hunt, Esq.

[Speaking of the alterative treatment of syphilitic eruptions, Mr. Hunt observes,]

Every mineral used in medicine has some peculiarity of action, which can only be understood by long and attentive observation; and without a familiarity with these habitudes, we use the medicine at great disadvantage. Too much attention cannot be given to this subject. In order to show its important bearing, the action of mercury may be contrasted with that of arsenic. Thus:

| ARSENIC | MERCURY |
|---|---|
| Produces its maximum of good by slow degrees, and by continued and prolonged exhibition. | Effects its salutary purposes often suddenly; always within a limited period; or, beyond that period, fails altogether. |
| Has a cumulative action, the system becoming more and more sensitive to its presence, and intolerant of its influence, in proportion to the quantity swallowed. | Has no cumulative effects after the first few days; and the system becomes less and less sensible of its presence, and more tolerant of its influence, by its habitual use. |
| May be given until the patient will not bear the five-hundredth part of a grain. | May be given until enormous quantities prove absolutely inert. |

| | |
|---|---|
| Affects the nervous system more readily at first, and afterwards the vascular system, the nervous tissues recovering their tone. | Affects the vascular system more readily at first, the nervous system suffering severely after a lengthened course. |
| Should therefore be added to the blood drop by drop, *acutè et gradatim*, in diminishing doses. | Should be poured in suddenly, until it produces some effect, then as suddenly withheld for a time, and resumed, if necessary, with greater energy. |

That the vascular system may be gradually inured to the influence of mercury, so that doses which at first had the power of salivating, may at length be administered without producing any sensible effect: and that, in order to excite as ready an action by a second or third course of mercury, as by the first, the dose must be increased, if not doubled, must be well known to every practitioner. It is also matter of common observation, that the salutary action of mercury on diseased structure, is nearly contemporaneous with the morbid action of the mineral on the gums or other tissues. Accordingly, the common practice has been, not only to make the gums sore, but to keep them sore for days or weeks together, with a view to the continued and protracted effects of the remedy on the disease. As it was once believed that copious ptyalism was necessary to insure the full benefit of the mercurial treatment, so of late it has been generally held, that a continued, though moderate, degree of soreness of the gums is a necessary condition. This opinion appears, however, to rest upon no better foundation than the former now long exploded notion.

Both the one practice and the other appear to be founded on the belief, that the morbid action of the mineral on the healthy tissues, takes precedence of its salutary action on the diseased structure. Many years' close and anxious observation have established in my mind the opinion, that this is an erroneous view. It is not easy to detect, in an ulcer or an eruption, the first appearances of healthy action; and it is clear that healthy action must exist for some little time before it becomes apparent. If, therefore, the gums first become tender, and the ulcer first presents an improved appearance, on one and the same day, it is fair to presume that the healthy action had been actually set up on the previous day, that is, antecedently to the morbid action on the gums. But further, close observation will generally reveal the fact, that the very appearance of improvement in the diseased parts exists before the gums are in any degree affected. The mercury has effected the good before it has effected the evil. The soreness of the gums, therefore, is a sign, not merely that the mercury has been pushed far enough, but that it has been pushed *farther than was necessary* for the establishment of healthy action in the diseased parts.

If a drachm of strong mercurial ointment has been used every night for five successive nights, and if, on the following day, healthy action is substituted for diseased; and if, on the sixth night, the inunction is continued, the gums becoming slightly sore on the following day, – in such a case as this, the mercury has been continued two nights longer than necessary: for the healthy action, which became apparent after the fifth night, must have existed the day before, though unobserved; consequently disease had been actually arrested by the fourth inunction; and the healthy action thus set up, would doubtless have continued, for a time at least, if the mercury had been omitted on the fifth and following nights. The injury inflicted on the gums, therefore, was wholly unnecessary to the immediate restoration of health. The effect has been sudden and perhaps instantaneous, --but will it be lasting? Probably not; and the practical question is: Would the effect have been rendered in any degree, more permanent or satisfactory, by persevering in the mercury? It is now pretty well agreed, that no advantage would have resulted from salivation; for sores which had become healthy at the commencement of a mercurial course, have been but too frequently observed to retrograde under a protracted ptyalism. And the same thing has been observed under a mild but long-continued course, affecting the gums but slightly.

Under the mercurial irritation in any and every degree (whether from the consequent exhaustion of the *vis vitæ*, or from whatsoever cause), the latent virus, if any exists in the system, is liable to break out in an aggravated and destructive form. It is, therefore, not only useless, but in some degree dangerous, to persist in the use of mercury for a single day beyond the date of a visible improvement in the disease. It is, however, often necessary to have recourse to a second course, or even a third or fourth, in order to effect the final destruction of the disease. Each succeeding course must be more energetic than its predecessor; otherwise little or no effect will be produced. The courses should also be short and distinct, and should be so managed as to arrest disease without disturbing the general health. The case should be watched *day by day*, and an improvement in the disease, ever so slight, be it real and satisfactory, should be regarded as the signal for arresting the course. Then aperients and tonics should be substituted for the mercury: and the very first appearance of a return of the disease indicates the necessity of a renewed administration of mercury in doses twice as large as the first. By this means disease may often be arrested in an incredibly short time; and when the system is again purged from the mercury, a third course may be administered as a preventive, suspending the mineral as soon as fetor is observable in the breath, or a bitter metallic taste complained of by the patient.

The whole of this practice, which has proved very generally successful, is founded upon the fact, that the action of mercury on the disease is sudden, and of short duration. It is that of a shock; and the impulse appears to be expended upon the organic nerves. In what way such an action on these nerves can permanently destroy a blood disease, it may not be easy to explain: but that the final results are not compromised by the limited duration of the mercurial action is quite certain. Indeed, the radical cure of this disease never proves so difficult as where mercury has been administered in large doses for many consecutive months. The debility thus produced too often renders the system a helpless victim to the disease. Whereas, by short and vigorous courses, the vital powers are roused and invigorated, the appetite is increased, the digestive organs become active, sleep is procured, and the disease appears to yield rather to the *vis medicatrix naturæ* than to any specific anti-syphilitic virtues inherent in the mineral.

These views may appear opposed to the experience of many practical men, who, failing to effect a radical cure of syphilis by a short course of mercury, have seen the disease annihilated at length by a persevering use of the remedy for many weeks together, to the severe injury of the gums. Such cases occurred in large numbers in the early part of my practice; and it was once my opinion, that the benefit was due to the unremitting use of mercury. More recent experience, however, has made it evident, that the disease would have yielded quite as fully to a shorter course, and that the benefit derived from the continuous use of mercury, was all due to the shock produced at the commencement of the course.

A very powerful, yet incidental, illustration of the principles above enumerated, has been furnished by a recent publication from the pen of Mr. Langston Parker. This gentleman has found that by a process of fumigation, the beneficial effects of mercury may be secured with more certainty and less inconvenience than by the usual methods. The advantage is evidently derived from the rapidity of absorption and consequent suddenness of effect. Mr. Parker's practice must, of course, be limited by its attendant inconveniences; but the principle is capable of almost universal appliance. We have had long experience of its value in the use of mercurial inhalation. The fumes of the oxides of mercury received into the fauces have been found to produce the specific effects of the medicine when the system has been proof against inunction. But it is easy to apply the principle to any mode of introducing mercury into the system, which it may be found convenient to adopt.

[There is a possibility of severely salivating a patient by an unguarded exhibition of a few energetic doses of mercury. This is to be avoided by administering an experimental course to ascertain exactly the degree of mercurial susceptibility in the constitution of each patient. Strumous subjects are apt to bear mercury ill; preparations of iron must be combined with the mineral, and the patient must be given the advantage of the coast, the open air, and a mild season, when the difficulty is often overcome.]

Much importance is attached by some practictioners to the selection of the medicinal preparations of mercury; some giving the preference to one form or mode of introduction, others to another. Without depreciating the real value of these preferences, it may be questioned whether any general rule can be laid down. Every preparation has its objections as well as its advantages; but both the one and the other are casual, not inherent. The chloride is active and energetic, and invaluable in cases of iritis, where there is no time to be lost; but it is apt to create undue irritation in the bowels. Inunction is a safe and, generally, a sure mode of introduction. But it is a dirty and inconvenient practice; and now and then we meet with cases in which the absorbents of the skin refuse to perform their office: neither can we in any case ascertain how much mercury is actually absorbed. The blue pill is a mild and convenient form for the first course; yet it is liable to remain unchanged and inert in the bowels, or, on the other hand, to be converted into the chloride or bichloride. The latter preparation is often active and useful, but it fails in safe doses to create the salutary shock so necessary to the full effect of mercury on the system. Fumigation, either general or local, presents perhaps more advantages, when it can be conveniently had recourse to, than any other mode,—but it is a difficult and delicate question, how to regulate the dose. It is my usual practice to begin the course with two or three grains of blue pill every night for three nights, by way of experiment. If this produces no effect, an aperient is administered, and after it, five or seven grains of blue pill night and morning, until its salutary effect becomes visible. In the second course, the dose is increased; in the third, inunction is preferred; in the fourth, inunction, together with frequent doses of calomel, with or without opium. In strumous cases, the bichloride, combined with the compound tincture of cinchona for adults, and the grey powder for children, with some preparation of iron, have been found most useful.

In all cases, regard must be had, not only to the original constitution of the patient, but to his present condition. Both plethora and anæmia are conditions highly unfavourable to the advantageous exhibition of mercury. In the former case, depletion must precede the mercurial course: in the latter, the preparations of iron may be combined with mercury, or otherwise administered.—*London Journal of Medicine. March*, 1851, *p.* 240.

## 104.—TREATMENT OF GONORRHŒA BY CHLORIDE OF ZINC INJECTIONS.

By E. A. Lloyd, Esq., Surgeon to St. Bartholomew's Hospital.

[In the patient, in the first case related by Mr. Lloyd, all the symptoms of gonorrhœa were present in an aggravated form; copious yellow discharge from the urethra, with pouting or protrusion of the lips of the orifice; glans penis, prepuce, and in some degree the entire penis red and swollen; slight uneasiness in the inguinal and pubic regions as well as in perinæo; pain in erections, and great scalding on micturition.]

Case 1.—The patient was about fifty years of age, and stated that he had come to consult me under very disagreeable circumstances, for he was a married man, and had a severe gonorrhœa upon him. He added, that I must cure him before the arrival of his wife, whom he expected from the country in the course of a week. I considered this a good opportunity of testing the efficacy of the chloride, and I was led to make the experiment from having observed, in many diseases in which I had used it, the rapidity with which it would sometimes subdue and change morbid action. I considered, also, from the affinity of the salt for albumen and gelatine, that it might act beneficially on the secerning vessels. From previous experience as to the effects of the medicine on mucous surfaces, I thought that the urethra, even in its greatly inflamed state, would bear a lotion containing one grain of chloride to one ounce of water. This lotion I therefore prescribed, with directions that a very small syringeful should be gently injected every six or eight hours. The penis and perinæum were to be frequently bathed with tepid water, and I likewise prescribed the following medicines:—Rochelle salt, six drachms; heavy magnesia, one drachm and a half; antimonial wine, four drachms; syrup of marsh mallow, four drachms; gum mixture, one ounce, and six ounces of water. The sixth part of the mixture to be taken three times a day. I added two pills composed of two grains of calomel, ten of extract of jalap, and one drop of pimento oil, to be taken immediately, and repeated every other night. The patient was to come to me the next day. In the morning he presented himself, saying that he was much better; he had used the injection four times, and since the third there had been no appearance of matter from the urethra, nothing coming away but a slight watery discharge. I examined him, and found this to be the case. The inflammation of the penis had likewise subsided, but there was pain and tension in the perinæum, and uneasiness in passing urine. I directed that he should repeat the pills immediately, persevere with the mixture, have a warm bath at 98° as soon as possible, and bathe the perinæum frequently with comfortably warm water. The next day the symptoms had very much diminished; there was no return of discharge, and before the end of the week all was well; and this, I believe, proved, on the arrival of the lady, a good cure, no return of the disease having occurred. You will be pleased to notice that the injection was continued the whole time.

Case 2.—Another married man consulted me on account of gonorrhœa which had existed for a week; the symptoms were nearly as in the former case, and the same treatment was pursued. The chloride-of-zinc lotion was commenced on Dec. 4, and in four days' time the disease was cured.

Case 3.—Charles Sims, an hospital patient, came under my care Dec. 5, and stated that he had had gonorrhœa for two months. From the nature of the discharge, and the inflammation of the parts, it appeared that he had contracted a fresh disease. He was subjected to the same treatment as the former patients, and on the 12th of December he was quite cured.

Case 4.—Morris Green, also an hospital patient, came under my care on Dec. 4, on account of a bad gonorrhœa, which he had had for three weeks. He was subjected to the same treatment as was employed in the former cases, and on the 11th of December he was quite well. At the expiration of three days all purulent discharge had ceased.

Case 5.—Mr. G., a married man of plethoric habit, consulted me on Feb. 25, on account of a gonorrhœa, contracted seven days before. There was a copious purulent discharge, great ardor urinæ and chordee. The saline treatment, with antimony and warm baths, and the lotion of chloride of zinc, were prescribed. After the third using of the lotion, the discharge had almost ceased, there remaining nothing but a slight serous secretion. On the 28th of February, the only vestige of the disease that remained was slight tumescence of the orifice of the urethra.

It would only be a tedious repetition to adduce more cases of this kind; it will be a more profitable employment of time, particularly as I have now but a few moments to spare, to consider some other circumstances relative to the employment of the chloride-of-zinc lotion in gonorrhœa.

I have often used it in cases in which the inflammation of contiguous structures has co-existed with the gonorrhœa to a great extent, and a beneficial result has generally followed; and I have never observed any ill consequences from such procedure. I have several times employed it when hernia humoralis was existing at the same time in a most acute form; and I have likewise so used it this year, in the hospital, in several cases with decided benefit, the gonorrhœa having been cured, and the hernia humoralis being recovered from, rather more quickly than otherwise. In all such cases, I use pretty active depletory measures at the commmencement of the disease, and administer sometimes the tartar emetic, in grain doses, every three or four hours, till the acute stage of the inflammation is gone by. I have also employed the same remedy with marked and almost immediate benefit in cases of gonorrhœal ophthalmia, both in children and in the adult; and I have also injected the cavity of the uterus with the same lotion, in some cases of long-continued purulent discharge, with speedy relief; and this in cases which had resisted all the mere common remedies. I seldom use more than one grain to the ounce of water in recent cases of gonorrhœa, but in some cases I go as far as three grains.

I do not intend to state that the chloride of zinc will cure every case of gonorrhœa, but when employed in the early stage, it has proved in my hands more successful than any other remedy I ever employed. In cases of long standing, I have not found it equally efficacious and it has often failed. Before concluding, I would caution you not to allow too large a quantity of the lotion to be thrown into the urethra at once: a small syringe, half full, and used very gently, is better than to inject large quantities. I would further urge upon you not to employ the lotion without combining with it the antiphlogistic remedies.—*Lancet, December* 28, 1850, *p.* 669.

---

105.—*Borax as an Application to Gangrenous Buboes.*—At the meeting of the Physiological and Pathological section of the Medical Society of Vienna on June 18, 1850, Dr. EFFENBERGER stated that he had applied a solution of borax, in the proportion of from one to two drachms in a pint of water, to a large number of patients who suffered from gangrenous bubo, with great success. He had had fifty cases in one year; not one had died, although there were several very severe cases, and in one the femoral vessels were laid bare. The solution was applied by means of charpie, so as to cover the edges of the sore. It was very essential that the charpie should be very frequently renewed by night and day; and to the neglect of this precaution, he attributed the failure of this practice in the hands of other surgeons.—*London Journal of Med., April,* 1851, *p.* 375.

## AFFECTIONS OF THE EYE AND EAR.

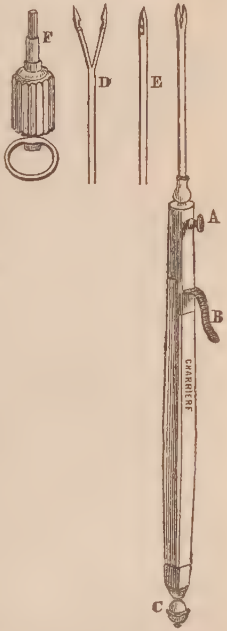
### 106.—NEW SCISSARS FOR THE REMOVAL OF FALSE MEMBRANES FROM THE EYE.

By W. R. Wilde, Esq., Surgeon to St. Mark's Ophthalmic Hospital, Dublin.

[Mr. Wilde has recently invented a very simple and beautiful instrument for the removal of opaque capsules and false membranes from the chambers of the eye, which he describes as follows.]

Every person who has performed many operations for cataract must be aware of the difficulty there is in removing from the eye, or pressing out of the field of vision, a piece of opaque capsule or a scrap of false membrane. The causes which produce these obstructions to vision, and the appearances which they present, are so well known to ophthalmic surgeons as not to require description here. Frequently the piece of opaque capsule is held behind or within the pupil by a delicately-fine cobweb-like membrane, of a light grey colour, but sometimes transparent, which is generally attached to the ciliary processes, or to the back of the iris. Notwithstanding its tenuity, this membrane is very tough; and, although one can make large rents in it with a cataract needle, particularly that with a fine cutting edge, such as I am in the habit of using, it is very difficult to cut a piece of it across, and the narrower the strip the greater the difficulty. One can pass the needle behind, and bring the offending body forward even to the back of the cornea, or press it backwards into the vitreous humour, to any reasonable depth; but still, it will not give way, and a manifest drag appearing in the ciliary attachment of the iris if we continue the process, warns us to desist. Sometimes the piece of capsule itself occupies the position of the membrane which I have now described. If by any means one end of the opaque body can be detached, the subsequent difficulties are much lessened. An opening may then be made in the cornea opposite the point where the opaque body is still adherent to the back of the iris, the aqueous fluid partially evacuated, and then, as the offending substance falls forward towards the wound in the cornea, it may be hooked out, or drawn through with Dalrymple's forceps or the little instrument which I described for the purpose some years ago, (see Ophthalmic Report in the 'Dublin Quarterly Journal,' for 1848. Vol. V., p. 501,) and then removed with a fine scissars. Care should be taken that no portion of the capsule, or the membrane to which it is attached to the iris, remain in the wound. The lids may be closed, and the case treated like one of an ordinary extraction, except that we must keep the pupil dilated while the aqueous fluid is re-secreted. This operation is the one I have been in the habit of performing in cases such as the above; but, as I have already remarked, it is chiefly applicable to instances where the capsule remains like a leaf attached to its stalk. To think of depressing it from out of the field of vision is almost futile, its peduncle is highly elastic, and it springs back into its former position the moment we relieve it from the pressure of the needle.

The first grand point I conceive, in such cases, is to detach the capsule or its surrounding membrane at one extremity so as to leave it attached by only one end: but this is a very difficult matter. The ordinary iris-scissars requires too large an opening in the cornea to work with freedom. I have, therefore, taken advantage of the principle of the very beautiful instrument lately invented by M. Charrière, the celebrated cutler of Paris,—and described in the 'Annuaire de Médécin et de Chirurgie' for the present year and styled by Dr. Desmarres, a Serretelé—to construct a pair of scissars that will occupy less space than any other yet invented, cut with greater certainty, and that can with greater facility be introduced either through the cornea or sclerotica. The capsule-forceps described in the 'Annuaire,' being likewise made in London, by Mr. Weiss, and now in the hands of every ophthalmic surgeon, is already so well known as not to require a minute description of its beautiful mechanism here, and the accompanying illustration will explain my meaning more perfectly than words. To the end of a fine double canula is attached a small but strong brass spiral spring which runs down through a hollow ivory handle of the usual length of most eye instruments, and fixed at the end by a ball nut, C. By means of the finger-spring B the long canula is pressed forward through the short one or collar, which is attached by means of the small thumb-screw A to a metal plate at the end of the handle. The scissars part, D, consists of a fine steel stem an inch and three quarters long, and not so thick as an ordinary darning needle, the end of which is cleft and each extremity beautifully formed into the blade of a fine pair of *shears*, scarcely a line and a half long. My idea was, that the instrument should cut like the ordinary shears used in sheep-shearing or wool manufactory, in which a spring keeps the blades apart, and they are brought together by the action of the hand. The instrument maker has beautifully carried out my conception, and, by giving a slight inward curve or *wind*, as it is technically termed, to each blade, like the scissars invented by Dr. Wollaston, and also so setting the fork of this part of the instrument, that the blades would cross each other on the wrong side if closed, and when not regulated; they, when properly adjusted, and placed within the canula, cut with the greatest certainty and precision. The various parts of the instrument having been put together up to this point, the blade-stem, D, is passed down through the oval canula, with the flat of the blades on the plane of the spring and screw, until they begin to be closed by the pressure of



the canula. The scissars or shear blades must then be set with the fingers, (and this will require some delicate and dexterous management) so as to close and cross each other in the proper direction, and the stem is then run down the canula to the requisite depth, when the thumb-screw, A, which also fixes the collar in which the canula moves, is to be screwed home, and the blade-stem fixed thereby. The requisite degree of elasticity to draw back the canula can be given by adjusting the nut at C.

When the instrument is about to be used, the spring B being pressed down to the handle by the middle finger, the long canula is projected through the collar, and the blades of the scissars closed with that very clipping motion, which is most requisite: and the spring B being relaxed, the coil within the handle brings back the canula, and allows the blades of the scissars to divaricate. When the canula is pressed forward, and the blades of the scissars closed, they form a fine needle-like point, as shown at E. Figure F, is a key to fix and screw up the spring B. No scissars that I have ever met cuts with the same degree of sharpness and accuracy; and I have no doubt that this will shortly be rendered much finer, so as to occupy scarcely more space than a cataract needle. It is intended to be introduced either through the sclerotic or cornea, according to the most advantageous position for dividing the portion of capsule or false membrane. When introduced through the cornea, an opening should first be made for it with a flat needle or the point of an extraction knife. Possibly this instrument or some modification of it may be useful in performing the operation for artificial pupil, or in detaching portions of the iris from the back of the cornea, &c. I have been induced by M. Charrière, to give this early notice of the instrument, otherwise I should have waited until I had had practical experience of its value and working.—*Med. Times, Dec.* 7, 1850, *p.* 592.

---

107.—*On Specks and Opacities of the Cornea.* (From the Medical Report of the Edinburgh Eye Infirmary). By DR. ROBERT HAMILTON, and BENJAMIN BELL, Esq.—A knowledge of the minute anatomy of this structure, is most useful in guiding our prognosis, as well as sometimes regulating our treatment, in those numerous and vexatious cases so well known under the general appellation of opacities of the cornea. Regarding these cases, the experience of the past year has strongly impressed upon our notice the decided improvement which has often taken place upon specks on the cornea, when treated with gently stimulating applications, such as the solution of nitrate of silver. Under the continued use of this agent, and other gentle excitants, many of those depositions which, we feared, had seriously compromised distinct vision for life, have slowly, but entirely disappeared;—a result attributable, undoubtedly, mainly to nature's work, but probably somewhat assisted by the persevering use of the resources of art. The rationale of the process, and of the amount of its salutary agency, as well explained by Mr. Bowman, seem to be, that the proper laminated tissue, is capable of enlarging its vascular resources for its support under disease, and for the subsequent removal of diseased products to such an extent, that, if it has itself escaped disorganization, it is able, under favourable circumstances, completely to resume its transparency.—*Monthly Journal of Medical Science, April,* 1851, *p.* 388.

---

108.—*Gonorrhœal Ophthalmia.* (From the Medical Report of the Edinburgh Eye Infirmary).—Three cases of gonorrhœal ophthalmia have come under treatment, all of them marked with the urgent and violent character so striking in this disorder. In all of them one eye only was implicated. We attach very considerable importance, in this class of cases, to the early use of free radiating incisions of the sclerotic portion of the conjunctiva, which, it is alleged, when in a state of intense chemosis, strangulates the vessels going to the cornea, and superinduces thereby its sudden sloughing and mortification. Be that as it may, this practice was had recourse to in our cases. In one, the cornea got off scatheless; in another, it quite recovered, after considerable ulceration of its superior circumference; in the third, occurring in a young man in the height of vital power, but who did not come into the infirmary for several days after his attack, when sloughing had already commenced, the cornea was seriously compromised, and the vision nearly lost.—*Monthly Journal of Medical Science, April,* 1851, *p.* 389.

---

109.—*Concentrated Solution of Tannin in Affections of the Eyes.* By M. HAIRION.—In all formularies there are to be found collyria and injections of tannin, but in all these prescriptions the solution is weak, being about one or two parts to 120 of water. There is, therefore, nothing new in the employment of tannin as a collyrium. The peculiarity of M. Hairion's practice consists in the strength of the preparations which he employs; thus his ordinary solution is one part of tannin to three of distilled water; sometimes he employs it in fine powder, or in ointment, or in the form of a thick magma. He has used it in chronic and acute conjunctivitis, "vegetating granulations," corneitis with and without ulceration, chemosis, and paunus; and it is in this last affection that he has met with most success from its use, a complete cure having been effected in some cases very rapidly. In "vesicular granulations" he has had less success, especially when they are at their height. M. Hairion, after a very enthusiastic laudation of its utility, states that he has never met with any occurrences which could lead him to regret having used these large doses; it has never caused the least inflammatory reaction; it has never produced any caustic effect, nor given rise to indelible incrustations; and, moreover, its application is not painful to the patient.—*Archives de Méd. Belges, in Journ. de Pharmacie,* Dec. 1850.

[M. Hairion's strong solution of tannin is probably safe enough, and may answer well in some instances; we have used it in the proportion of one part to eight in chronic corneitis, with apparent advantage; but our experience of it is too limited to entitle us yet to pronounce on its value. We fear that our author's partiality to it leads him very much to exaggerate its utility. Ed. M. J.]—*Monthly Journal of Medical Science, Feb.*, 1851, *p.* 192.

## 110.—NOTICE OF THE TREATMENT OF CERTAIN CASES OF ENTROPION BY MEANS OF COLLODION.

(Under the care of Wm. Bowman, Esq., F.R.S.)—Reported by J. Cummin Toshach, Esq.

[The following notice of this remedy will we think be considered justifiable, when it is known that it has been used as a substitute in a variety of instances, for the somewhat severe operations frequently necessary for the relief of persons afflicted with this troublesome affection. The cases occurred at the Royal London Ophthalmic Hospital, Moorfields.)

The most frequent cases of entropion are those affecting the lower lid in elderly persons suffering from ophthalmia. The spasm of the orbicularis, the forcible squeezing together of the lids, occasions an inversion of the lower one, owing to the relaxation of the integument. The inversion having once taken place, tends immediately and directly to aggravate the ophthalmia and the irritability of the organ, and thus to perpetuate and increase the entropion. If the inversion is slight, the margin of the lid is turned against the globe, and the lashes lie flat upon the sclerotica and cornea, rubbing the conjunctiva, but often with less irritation than might be expected, and always with less than is occasioned by that inversion or displacement of the cilia in which their free ends are pointedly turned against the eyeball. If the inversion be still greater, the ciliary border is turned completely over, so that the cilia are bent under and are received as it were against the mucous surface of the lid, in the sulcus which always exists along the lid in consequence of its being rolled inwards upon itself. In this position they give less pain. But in both conditions they constitute a serious source of discomfort, and prevent the cure of the ophthalmia. If allowed to remain for any length of time, they often lead to opacities of the cornea and other secondary disorders.

In this form of entropion an operation has commonly been required, and that now commonly resorted to, consists in removing a horizontally elliptical piece of the integument close to the ciliary border, and closing the gap by fine sutures. Other modes of fulfilling the same indications have been adopted with more or less success, and when patients have been unwilling to submit to any of them, the best substitute, and that a most inefficient one, in many cases, has been the fixing the lid in place by means of a piece of adhesive plaster, which is often difficult of retention, and always unsightly.

The following cases, which are among those that have been treated by Mr. Bowman, will show that the collodion, properly applied, affords not merely temporary but permanent relief in this variety of entropion.

Case I. J. P., æt. sixty-one, female, presented herself at the hospital, for what she called a cold in the left eye, which had existed twelve or fourteen days, and for the relief of which she had been under treatment at another hospital, where she had given her some eye-water. After attending several times without benefit she applied here. On examining the eye, Mr. Bowman found that the ophthalmia was dependent on an entropion of the lower lid, it being just sufficiently inverted for the cilia with their convex surfaces to rub against the ocular conjunctiva. Mr. Bowman, on turning his attention to the right eye, observed that there was in this eye also an entropion, but without much accompanying ophthalmia: the inversion in this eye being complete, the cilia were not rubbing against and irritating the conjunctiva, but were lodged in a longitudinal sulcus extending the whole length of the lid, and corresponding to the attached border of the tarsal cartilage.

For the relief of the ophthalmia in the left eye, collodion was applied to the lower lid, in the manner and with the precautions to be presently mentioned. It was also applied to the right lower lid, to restore it to its natural position. No other remedies were employed. She left with directions not to rub the collodion off; and in two days afterwards the patient came with the ophthalmia in the left eye quite well, and no inversion. On the right side the tendency to inversion was much diminished, and the collodion was applied again. This application was successful.

Case II. J. L., æt. 70, an old man, was to have an artificial pupil made in his right eye. On presenting himself for operation, it was found that there was an entropion of the lower lid, and considerable concomitant ophthalmia. In this state of things, it was impossible to think of proceeding with the artificial pupil. Collodion was therefore applied to the lower lid, and the patient, living some distance out of town, was told to return in a week, which he did; when the ophthalmia had entirely ceased, and the entropion was no longer present. After being in the hospital two or three days, the artificial pupil was made, without any undue inflammation following the operation. In this case, had the collodion not been used, it would have been requisite to have removed a portion of skin, as in the ordinary operation for entropion, previously to attempting to make a new pupil; but by a very simple means, surgical interference was obviated, and a painful proceeding, often submitted to with reluctance, was rendered unnecessary.

In the following case it failed through the neglect of the patient to have it replaced at the proper time.

Case III. R. M., æt. 70, had had entropion of the right lower lid for six weeks, with ophthalmia, when the collodion was applied on the 24th March, 1850. On the 4th April it still adhered effectively, and the inversion was prevented. He did not come again till the 18th April, when the collodion had been displaced several days, and the entropion had returned. It was then replaced, and also on the 2nd and 9th of May; and for the time gave complete relief. After this he stayed away three weeks, during which the entropion returned under a fresh attack of ophthalmia; and as there was no prospect of his being able to come at more frequent intervals, to have the treatment efficiently carried out, Mr. Bowman recommended him to submit to the removal of a piece of the integument in the ordinary way, to which he readily consented, and by which he was cured.

There are other cases of entropion, the result of aggravated or long continued ophthalmia, with much photophobia and lacrymation. The following examples will show that these also are amenable to the collodion treatment.

Case IV. S. L. æt. 39, female, states that five months prior to applying to this hospital (January 20, 1851), her eyes became suddenly bad; that she had been under treatment all that time without any benefit. The right eye was the worst, in which she states there had been an inversion of the lower lid since the commencement. She has at present great intolerance, and profuse lacrymation. There is an opacity covering the upper part of the cornea of the right eye. When she first presented herself she was ordered a blister behind the right ear, and some lead lotion. On the 27th, collodion was applied to the right lower lid. On the 30th, she came back, with the collodion displaced and the entropion restored; but the collodion was reapplied on that day, and on three occasions afterwards, at intervals of three days; when, on the 10th of February, she is much improved; and on the 25th of March she comes with the entropion cured, the opacity of the cornea alone remaining. From the 27th of January she had been taking gr. j of quinine twice a day.

In the application of collodion for the relief of entropion, certain precautions are to be observed; otherwise it may fail in its intended effect.

1st. The collodion itself should not be too dilute. It should be thick and syrupy; in short, it should be concentrated.

2nd. Care should be taken that the surface on which it is to be applied is properly *dry*, and free from any moisture: therefore it is always necessary to wipe the surface before application; otherwise it will not adhere with any degree of firmness, but will soon fall off. With attention to the above caution, it adheres very firmly. There are, however, many cases in which the outer surface of the inverted lid is excoriated by constant wetting by the tears; in which it is desirable to delay the application till this worst state is relieved. A few days are usually sufficient for this purpose.

3rd. During the application, and while evaporation is going on, the position of the head should be attended to. The vapour may irritate the conjunctiva, and a slight increase in the flow of tears take place. To prevent these flowing on to the collodion at the time of its application, it is necessary that the head be inclined to one side, so that the tears may drop from one corner of the eye, and not run over the lid and cheek.

It does not seem very important how much of the integument is covered by the collodion, so long as the contraction is sufficient to remedy the inversion ; and the best way to judge of this, is to bring the lid into place, and to raise the skin from the cheek towards the tarsal border, before commencing the application of the collodion. It is necessary to apply it close up to the ciliary border, in order to produce the contraction along that border. If this be done, it is less essential to smear it far down towards the cheek. Where the integument is very lax, a very considerable surface of it may be covered.

With these precautions in view, the application is proceeded with as follows. The lid being restored to its natural position, it is held there while the collodion is being applied, by making gentle traction outwards on the integument below the outer canthus. In this way the skin of the lower lid is horizontally grooved, while at the same time it is left exposed, so as to be free to receive the collodion. It should be held in this way till the collodion has contracted at least to such a degree as may be sufficient to maintain the right position of the lid during the further stages of the contraction. Very often one application of the collodion is sufficient to cure an entropion; but if a tendency to return manifests itself, it must be repeated at intervals of three or four days or a week.

It must be remembered that the collodion is not proposed as a cure for every case of entropion. In those forms which depend on contracted cicatrices or a distorted cartilage, when the tarsal edges may be irregular or much thickened, the ordinary modes of cure by operation must still be resorted to, but confining the treatment by collodion to those forms which are recent and uncomplicated with serious structural change, it will be found that it is an invaluable means of remedying a great and troublesome deformity.—*London Journal of Medicine, April,* 1851, *p.* 383.

---

111.—*On the advantage of Neutral-tint Glasses.*—By GILBERT MACKMURDO, Esq., F.R.S., Surgeon to the Royal London Ophthalmic Hospital, &c. Neutral-tint glasses are preferable to any others for the defending delicate eyes against an excess of light of any kind; for, as Mr. White Cooper has remarked, in his excellent little book, from which I have, this evening, taken several facts, it is well known that if a person's eye has been subjected to any particular coloured light, and he subsequently looks upon an object of a white colour, he will at first form a wrong judgment as to the colour, and he will not call the object white, neither will he suppose it to be the exact colour which he had previously looked at, but will conceive it to be of another tint, which in optics is termed the complementary colour. I have marked on the diagram-board the colours, and their complementary ones. The board was thus marked:—

| *Colours.* | *Complementary Colours.* |
|---|---|
| Red | Bluish-green. |
| Orange | Blue. |
| Yellow | Indigo. |
| Green | Violet-red. |
| Blue | Orange-red. |
| Indigo | Orange-yellow. |
| Violet | Yellow-green. |
| Black | White. |
| White | Black. |

Thus, if a person looks through blue glasses for a short time, the retina is less sensible to blue light; and therefore, when they are removed, if a piece of white paper is looked at, it will appear orange-red, because the observer sees only that colour which arises from the combination of all the rays in the white light which it reflects, with the exception of the blue. So also green would excite a violet-red spectrum.

Thus, then, any cause which would diminish the sensitiveness of the retina, as any particular colour would, should be avoided. The neutral-tint glasses, being of no definite colour, seem to defend the eye *from all colours equally*, and produce, under sunshine, the effect of a cloudy day.—*Lancet, April* 12, 1851, *p.* 402.

[Neutral-tint glasses may be quite correct for *day-light*, when the *relative proportions* of the rays of light require no alteration, but they are certainly worse than useless—they are positively injurious as a medium for gas-light, or any other artificial light. The *quantity* only of day-light requires to be diminished in some cases, and in these the neutral-tint is sufficient, and, indeed, perhaps the best. But the *quality* of artificial light requires to be changed. Day-light is composed of a great predominance of *blue* rays, artificial light of *red* rays. In the last therefore the red requires modifying with admixture of blue, which is done by *blue* glasses, a pure colour, and quite different from the neutral glasses, because neutral colour has a great quantity of *red* in its composition, the very colour we want to get rid of.—Ed. Ret.]

---

112.—*New Remedy for Short-sightedness.* By Dr. A. Turnbull.—[Dr. Turnbull states, that observing short-shighted persons partially close their eyelids when looking at distant objects, his attention was directed to the iris, which in such cases he found generally much dilated. The contraction of the iris necessarily increasing the length of vision by permitting the rays of light only to enter in a straight line. He conceived that if he could discover some remedy to effect this contraction, one cause of the defect of short-sightedness would be overcome.]

In the first instance, says Dr. Turnbull, I applied the extract of ginger, which was rubbed for five or ten minutes over the whole forehead, with the view of acting upon the branches of the fifth pair of nerves. Afterwards I substituted a concentrated tincture of ginger, of the strength of one part of gingerto two parts of spirits of wine decolorised by animal charcoal.

The success of this application was remarkable: in many cases it had the effect of doubling the length of vision. In some persons I found the iris was not much dilated, but very torpid. In these cases I applied the concentrated tincture of pepper, made of the same strength and in the same manner as the tincture of ginger. This I used until I observed that the iris had obtained a greater power of contraction and dilatation; after which I had again recourse to the tincture of ginger. This plan of treatment has been attended with the most signal success, and persons who were extremely short-sighted have very soon become enabled to lay permanently aside their concave glasses. The best method, I may observe, of testing the improvement of the sight during this treatment is, not by taking a printed book, and holding it near, and then at a greater distance from the eyes; this range of vision is much too limited: it is better to fix the attention of the patient upon a distant object, such as the brass key-hole of a door, and by his stepping some paces backwards, so as to place himself at a greater distance from it, he will soon discover the progress he is making.

So important a discovery as this will, I trust, be fairly tested by the members of our profession, who may rely on the success of the treatment I have recommended, if it be only judiciously and patiently carried out.

It is possible that the advantages derived from the tincture as above described may be ascribed to the essential principle, *piperin*, which is held in solution in the tincture of pepper.—*Med. Gazette, Nov.* 15, 1851, *p.* 163.

## 113.—ON THE USE OF GLYCERINE IN CERTAIN FORMS OF DEAFNESS.

By T. H. Wakley, Esq., Surgeon to the Royal Free Hospital.

[Nearly two years have elapsed since the publication of Mr. Wakley's paper on this subject, but any prejudices which there might have been at that time upon the subject is now at an end, and it has taken its place an indisputable fact, as one of our most useful remedial agents, in the treatment of several common forms of deafness. Mr. Wakley remarks.]

If the surface of the auditory canal be hard and inelastic, shining, and of a whitish appearance; if the natural secretion be wanting, and the membrana tympani be not pervious to the touch, the glycerine may be employed with a reasonable certainty of success, even if a partial deafness has been of many years' duration. An unusual appearance of the external membrane of the drum is an unfavourable sign, as in some instances it may be caused by displacement of the bones of the delicate aural structure. When, besides deafness of hearing, the other senses are deficient of action, the employment of glycerine rarely offers any hope of success. In such cases the greatest possible attention should be paid to the general health of the patient, with a view to restore the activity of the nervous system. The existence of paralysis in any part, arising from a traumatic cause, is an adverse indication, with respect to the use of glycerine. The manner of applying it is generally varied according to the state of the parts, and the effects sought to be produced. When the surface of the aural canal is dry and shining, the ears are to be carefully cleansed by means of cotton held within the blades of a pair of forceps and moistened with warm water. The canal is then to be wiped with dry cotton, until it is [illegible]. Then the glycerine is to be applied by the same means, the cotton, well soaked in the liquid, being gently passed backwards and forwards in the external meatus, care being taken to diffuse it over the surface of the tympanum.

I shall now mention some cases, selected from my note-book, as furnishing good types of the diseases which have been relieved by this mode of applying glycerine. They might be multiplied to a very large number.

Mary R——, Gray's-inn-lane; November 19, 1850; aged forty-nine; a strong, healthy-looking woman, an out-patient of this hospital. Deaf six years; could not hear the highest power of sonometer; ears dry and horny; membrana tympani of the right side ulcerated after a discharge, (following scarlet fever,) lasting six months; in the other ear the membrane was sound. The ears were rubbed with glycerine in the usual way, and in a few days she heard successively Nos. 8 and 7 of the sonometer. In seven weeks she was quite cured, a healthy secretion of wax having been established.

Anne M——, Gray's-inn-lane; aged thirty-three; a spare thin woman; had been deaf since the birth of her last child, when she had discharge from both ears; this ceased, and left her very deaf. Her ears presented much the same appearance as in the last case, the principal feature being the dry condition of the meatus. Glycerine was applied with the forceps and wool, and the woman was soon relieved from the unfortunate impediment.

Louisa R——, Hampstead, August, 1850, aged twenty-seven, deaf nine years. Ten years since, had measles, followed by a discharge, which lasted four months; it then ceased in both ears, and she has been deaf ever since that period. Hears better after washing her ears. The only peculiarity to be observed was a total want of wax. The glycerine was applied in the usual way, and gave almost instant relief. In six weeks her hearing was quite restored. This was a very remarkable case.

In other cases, where the ears are plugged with hardened, impacted wax, and where the membrana tympani is only coated with vitiated wax, the glycerine must be dropped into the ear three or four times during the day. In twenty-four hours the hardened mass will generally become sufficiently softened for removal—a little operation which requires some caution in its performance. If force be used, a portion of the delicate membrane of the drum may be torn away, and unpleasant consequences ensue. The mass will generally separate without force of any kind, if the means recommended be carefully followed; gentle syringing will also promote the separation. A pellet of fine sheep's wool, moistened with glycerine, should be placed in the meatus, in order that the newly exposed surface may be brought under the direct operation of the remedial agent. The pellet also would be of use in protecting the parts from the effects of cold and the sudden influence of the air. The removal of an empacted mass of exsiccated cerumen without these precautions may produce more deafness than the presence of the offending substance.

Master F——, City-road, aged six years, deaf in the right ear six months. Has had a constant roaring noise in that ear; which was frequently swollen, and very sore: he had been ordered purges and lotions, from which no benefit resulted. On examination, the meatus was found completely blocked up with hardened wax. I filled the ear with glycerine, and then fitted the plug. The next morning I easily removed the obstruction, and in it was found a good sized cherry-stone. The hearing was painfully acute for a few days. Sheep's wool was kept in the ear. I mention this case to show how necessary it is thoroughly to investigate every case which presents itself to you. I remember another instance occurring in a member of parliament, who was annoyed at intervals for two years by a discharge from, and painful swelling of the right ear. At last the dens sapientiæ of that side became painful, and the gum inflamed; this tooth was removed, and the ear was soon well. This case I consider very instructive; and the close proximity and anatomical relations of the part justify the supposition, that the diseased condition of the tooth caused the deafness and discharge from the ear.

H. R——, aged forty-three; Sept. 1850; an out patient of this hospital; very deaf in the right ear; could not hear No. 3 of the sonometer; cannot refer it to any cause; it appeared very gradually. He suffers from a "blowing sound" in that ear; when masticating his food, each fall of his jaw sounds like the report of a pistol; at other times he hears loud crackling noises. As I suspected in this case, an impacted mass of solidified wax was found, filling up the inner third of the meatus. Glycerine was poured in until the meatus was full; the bees-wax plug was then applied. In two days the wax was completely softened, and could be easily removed. The hearing was completely restored.

Another mode of applying the glycerine consists in soaking a pellet of sheep's wool in the fluid, and pushing it gently into the meatus until it rests against the drum. The wool, when compressed, should be about the size and shape of the aural cul-de-sac. A plug of prepared bees-wax, warmed in hot water, and placed against the external opening, and retained there, will effectually prevent both the entrance of the atmospheric air and the exit of the glycerine. This proceeding must be repeated every morning, the meatus being each time carefully cleansed by means of warm water, and made dry by passing backwards and forwards a small piece of dry cotton; then there will be a clear surface for the action of the glycerine.

One of the judges of the superior courts consulted me, with the concurrence of Sir B. Brodie. The learned judge was suffering from deafness in the right ear. The organ had become quite useless. The left ear was also partially deaf, but with the assistance of a very clever instrument, made by Mr. Rein, Strand, he was enabled to continue his judicial duties. On examination with the speculum auris, assisted by a powerful reflector, I found the lining membrane of the meatus dry and polished, the canal open and very straight, and the membrane of the drum of a pearly whiteness, the central part projecting into the meatus, and presenting even more opacity than the other parts; no ceruminous secretion whatever. The air could be heard to strike against the tympanum in both ears; this membrane was intact on both sides. I applied the wool well saturated with glycerine, to the membrane, fitting the bees-wax plug, which effectually prevents the entrance of atmospheric air or the exist of the glycerine, thus keeping the agent constantly against the part to be acted on. This proceeding was repeated every morning, the meatus being gently cleansed with warm water before fresh glycerine was introduced. At different intervals, four distinct layers of white, pulpy epithelium were removed; the ear was occasionally swollen and painful. The treatment was persevered in for more than two months, and the membrane of the drum was much altered in appearance, assuming more of the dark look of the healthy organ. I introduce this case, not as a successful one in its results, but as illustrating very beautifully the mechanical action of the agent in the worst case of epithelial thickening which I have ever seen. In this case, had the deafness been due to the mechanical obstruction, it would have proved beneficial, but the cause was purely nervous, as had been previously diagnosed by Sir B. Brodie. There can be little doubt, that in many cases this cuticular deposition is the cause of deficient hearing, but it may be that the paralysis is the exciting cause to this morbid action.

M. O——, Clerkenwell, aged fifty-three, August, 1850. Deafness in both ears; followed a severe attack of influenza; never had any discharge from either ear; occasional pain in both ears; when travelling in a railway carriage hears better than other persons. On examination the aural cul-de-sac was found to be dry and inelastic, and to have the appearance of parchment; the membrana tympani looked white, and of a cartilaginous consistence; no wax or moisture of any kind; the meatus and tympanum painful to the touch. The glycerine was used as in the last case. From the right ear two pieces of epithelium, of a pulpy consistence, were removed, and one thick piece from the left ear. In seven weeks she discontinued her attendance, hearing, when at church, the clergyman of the parish, a blessing which (as she had stated) she never again expected to enjoy. I had twice to modify the treatment in this case, as some pain and swelling supervened.

Henry M——, Esq., a merchant, aged sixty-two, consulted me October 16, 1850. Had been deaf for more than twelve years in his right ear; he could not hear the loudest tone of the sonometer. The meatus had quite a "parchment appearance." The ear was filled with glycerine, and the bees-wax plug introduced. This was repeated every day. In fourteen days several pieces of soft skin-like substance were removed, with evident improvement to the patient, who could now hear No. 3 of the sonometer. I was obliged to modify the treatment once, as the patient complained of pain. In this treatment, the general health, especially the secretions, should always be watched.

Mary M——; Sept. 15, 1850; Brentford; aged twenty-six; deaf in both ears; could not hear the highest tone of the sonometer; meatus dry and inelastic; tympanum much thickened; not perforated; not painful to the touch. Treated as in the preceding case; treatment lasted six weeks. Two portions of cuticular soft substance came away from the right ear; the left did not appear much affected by the glycerine. In six weeks the patient heard No. 3 of the sonometer, at a distance of two feet from the ear. No improvement whatever in the right ear. I saw this patient a few days since; she states that the relieved ear fully answers all the purposes required.

When patients are treated in this way, they, of course, require the careful attention of the surgeon. The *modus operandi* is simple enough; the glycerine being kept continually in contact with the part, acts mechanically, either absorbing or penetrating the epithelial coating and separating the individual particles. The ordinary time required for this treatment varies from two to eight weeks, according to the method employed. With respect to the permanence of the relief—some cases always require the presence of glycerine, as the best known substitute for the natural secretion of the aural membrane. The frequent introduction of glycerine tends to restore the external meatus to a healthy condition, and fit it for the proper transmission of sound.

I mention the following case as one amongst several which I have seen, proving that glycerine, if it be not quite pure, and made according to the proper formula, may cause irritation, and produce other unpleasant symptoms; and there is little doubt that from such cause this really valuable remedial agent has frequently suffered in repute.

A lady, living at the West-end, aged sixty-eight, consulted me two years since for deafness in both ears. They presented the appearance which indicated the use of glycerine. During eighteen months she lubricated her ears with this agent, receiving considerable assistance and comfort from it, and entirely laying aside the acoustic instrument which had been previously ordered. One morning I was hastily summoned to this lady; she was in considerable pain; the right ear greatly swollen and inflamed; she was much alarmed. She stated that she had used the glycerine regularly. The cause of the pain and swelling I soon discovered to be the stale and impure glycerine, which appeared quite changed in character, having an offensive smell, and being too light in colour, of thin consistence, and deficient specific gravity. This *contretemps* was treated in the usual way, and she again uses pure glycerine with the same advantage as before.

In the removal of foreign bodies from the ear the glycerine is often eminently useful. Some months since a solicitor of Gray's-inn consulted me respecting pain and deafness in the right ear; he had suffered much pain for five months. The annoyance had so affected his general health that he was quite incapacitated from following his professional pursuits. There was an occasional discharge from the ear. The meatus and external parts were swollen, sore, and emitted a light muco-purulent fluid. There was a mass of offensive-looking wax. On being touched with a probe it was hard and resisting. The glycerine was dropped into the ear in the manner just described. On the next day the impacted mass was easily removed. When examined, in the midst of it there was found a common *fly*, a foreign body which had evidently been the cause of the mischief. The use of the glycerine was continued for a few days, the pain ceased, and the hearing was soon restored.—*Lancet, January,* 18, 1851, *p.* 64.

# MIDWIFERY,

## AND THE DISEASES OF WOMEN.

---

### 114.—ON THE DISTRIBUTION OF THE NERVES OF THE UTERUS.

By Dr. T. Snow Beck.

Before describing the distribution of the nerves of the uterus, vagina, and neighbouring organs, it is necessary briefly to recal the constitution of the sympathetic nervous system, as attention to this is essential to the full understanding of the subject.

The sympathetic nervous system is described as consisting of three parts:—1. The two gangliated cords which extend down each side of the vertebral column. 2. A series of plexuses in front of the vertebral column, as the cardiac plexus, the solar plexus, the aortic plexus, the hypogastric plexus, &c., from which branches are sent to the different viscera. 3. Small ganglia dispersed through the cranium, as the ophthalmic ganglia, the otic ganglia, the spheno-maxillary ganglia, the submaxillary ganglia, &c.

This system of nerves is also said to be connected with the spinal nerves by two roots—a white root and a grey root—and to be composed of an admixture of tubular nervous fibres and gelatinous nervous fibres. This description, however, gives a very imperfect idea of the constitution of the sympathetic nervous system.

Passing over the various opinions which have been expressed respecting this part of the anatomy, as being foreign to the present object, and as requiring too much space, I will sketch the structure of the sympathetic nervous system, as I believe it to be.

The nerves distributed over the body, to which the name sympathetic is applied, are composed of two kinds of nervous fibres very distinct from each other: the tubular nervous fibre, and the gelatinous nervous fibre. The tubular nervous fibre is derived from the brain and spinal cord, and, in whatever part of the body it is found, can always be traced to one of these organs. The gelatinous nervous fibre has its origin in the various ganglia of the sympathetic, whether these ganglia be situated at the sides of the vertebræ, on the posterior roots of the spinal nerves, in front of the vertebræ, dispersed through the cranium, or elsewhere situated in the body. The branches of nerves which have been called roots of the sympathetic system, are,

(*a*) The white branch, which is a branch from the spinal nerve. It is composed of two parts, one half from the posterior, and the other half from the anterior root of the spinal nerve; then passes inwards to the sympathetic ganglia, and becomes associated with the gelatinous nervous fibre proceeding from it, and these are together distributed to the different viscera.

(*b*) The grey branch, which arises from the ganglion, soon subdivides, and is finally distributed to the parts in the neighbourhood. It is a branch of the usually-called sympathetic system.

Hence there are two distinct systems of nerves: the one formed by the gelatinous nervous fibre, which, together with the ganglia from which they arise, constitutes the true sympathetic system; the other, composed of the tubular nervous fibre, which, with the brain and spinal cord, forms the cerebro-spinal system. The gelatinous nervous fibre being chiefly distributed to the viscera, is found in greatest quantity near these organs; the tubular nervous fibre, being concerned in sensation and motion, exists in greatest amount in the skin, muscles, &c. These two systems, associated together in varying proportions in the middle part of their course, constitute the sympathetic system as it is generally described. Yet these two systems (although associated in the middle part of their course) are totally distinct from each other at their origin and at their termination. At their origin, where the tubular fibre arises separately from the brain and spinal cord, whilst the gelatinous fibre arises only from the sympathetic ganglia. At their termination, where the tubular fibre separates from the gelatinous fibre, and each is separately distributed to the elements of the organ they are destined to supply. Minute microscopic nerves being found, which consist solely of the gelatinous nervous fibre.

The plexuses, then, in front of the vertebral column, and which furnish nerves to the various viscera, are composed of this association of the two systems of nerves, and to this class belong the aortic plexuses with their prolongation into the pelvis—the hypogastric plexus, the composition and distribution of which it is our special object to examine.

The superior aortic plexus, lying between the superior and inferior mesenteric arteries, is composed of an assemblage of ganglia, giving origin to the gelatinous fibre and branches of spinal nerves derived from the lumbar and lower dorsal nerves, with some communicating branches from the solar plexus. From this association of the two nervous fibres, or nervous systems, branches are sent along the inferior mesenteric and hæmorrhoidal arteries to the descending colon and rectum, and branches are prolonged downwards, to form the inferior aortic plexus, which, at the margin of the pelvis, separates into two divisions each of which receives the name of the hypogastric nerve or plexus. These plexuses pass round each side of the pelvis to reach the sides of the uterus; and there dividing and subdividing into minute branches, are finally distributed to the lower part of the organ. The middle part of the uterus is further supplied by a distinct branch which passes off from the upper part of the hypogastric plexus, and entering the broad ligament, so reaches the organ; whilst the upper part of the uterus is supplied by branches which come from the renal plexus, and, in company with the spermatic artery, descends to the ovary, furnishes branches to it, and finally is distributed to the upper part of the uterus.

Thus the uterus is supplied, in the inferior and middle part, by branches of gelatinous fibre, the true sympathetic nervous system, derived from the ganglia of the superior aortic plexus and lumbar ganglia, with some communicating branches from the solar plexus; and branches of spinal nerves, cerebro-spinal nervous system, derived from the lumbar and lower dorsal nerves. Nerves derived from the same sources are also distributed to the descending colon and rectum. The upper part of the uterus being supplied by gelatinous nervous fibres, derived from the solar plexus, and by spinal nerves derived from the splanchnic nerves, which are branches of the upper dorsal nerves. From the solar plexus, *i.e.*, from gelatinous fibres from the semilunar ganglia and dorsal ganglia, and branches of the dorsal spinal nerves, branches are also distributed to the stomach, small intestines, liver, kidneys, &c.

As the hypogastric nerve on each side passes to the side of the uterus, it sends down branches from the lower border, which, joining with branches from the sacral nerves, forms a complicated plexus on the side of the vagina—the pelvic plexus. Small ganglia of the sympathetic are found in this plexus, but it is chiefly composed of the cerebro-spinal nerves; and in this it differs essentially from the hypogastric plexus. From the pelvic plexus comparatively large nerves are distributed to the vagina; and considerable sized nerves are sent to the bladder; whilst small branches are furnished to the lower part of the rectum.

The nervous supply of the vagina, bladder, and lower part of the rectum differs in these points from the nerves distributed to the uterus. (*a*) In the source from which they are derived: those to the uterus, arise from the lumbar nerves and gelatinous or sympathetic nerves coming from the superior aortic plexus and from the solar plexus; those to the vagina, bladder, and lower part of the rectum, take their origin from the sacral nerves, and the sympathetic fibres from the ganglia of the pelvic plexus, with some branches from the hypogastric plexus. (*b*) In the composition: those to the uterus being composed of a large amount of sympathetic fibres, and a small amount of cerebro-spinal fibres: those to the vagina, bladder, &c., by a large amount of cerebro-spinal fibre, and a smaller amount of sympathetic fibre.

The muscles and skin of the perinæum and lower end of the rectum are supplied entirely by branches from the sacral nerves—the pudic nerve. Thus, as we proceed upwards, from the skin and muscles of the perinæum to the vagina, and thence to the uterus, we meet with less and less of the cerebro-spinal system or tubular nervous fibre; and more and more of the sympathetic system, or the gelatinous nervous fibre. And, as a consequence, the effects of disease or injury to the tissues are less and less felt, as we pass from the skin to the uterus; and the actions of the organs are more and more, though not entirely, withdrawn from the influence of the will.

Briefly, then, to recapitulate the anatomy of the nerves of the uterus, we find the following arrangement:—

1. The lower and middle portions of the uterus are supplied by the sympathetic from the superior aortic plexus and the lumbar ganglia, and by cerebro-spinal nerves from the branches of the lumbar and lower dorsal nerves.

2. The ovaries and upper part of the uterus are supplied by the sympathetic from the solar plexus and thoracic ganglia; and

by spinal nerves, from the intercostal nerves, by means of the splanchnic nerves.

3. The vagina and bladder are supplied by branches from the sympathetic from the ganglia in the pelvic plexus, also from the superior aortic and lumbar ganglia, through the medium of the hypogastric plexus; and by spinal nerves from the branches of the sacral plexus.

4. The muscles, skin, &c., of the perinæum, are supplied by branches from the sacral plexus.—*Med. Times, November* 23, 1850, *p*. 538.

## 115.—ON THE STATE OF THE NERVES DURING PREGNANCY.

### By Dr. Snow Beck.

[Dr. Beck states the following facts in support of the opinion that the nerves are not increased in size during pregnancy. He says,]

These facts are obtained from a series of dissections, which show that no enlargement of the nerves has taken place, and that a special provision exists for their distribution over the gravid uterus without any augmentation of their size.

The dissections consist of—1. The dissection of a gravid uterus in the full period of pregnancy, taken from the body of a well-proportioned healthy woman who had died from hæmorrhage within two hours after the birth of the child. 2. The dissection of the uterus of a woman who had previously borne children; care being taken to select one as near to the stature and as well-proportioned as the former, to avoid, as far as possible, any difference which might depend on individual peculiarity. 3. The dissection of a virgin uterus, taken from the body of a young lady, who died from phthisis pulmonalis, aged twenty-five years. 4. The verification upon recent specimens of the results of the previous dissections. 5. The dissections of the virgin uterus by Dr. Robert Lee.

These dissections being all made after the same method, *i. e.*, by the removal of the fibro-cellular neurilemma, when compared together incontestably show that the nerves are of the same size in all; or, in other words, that the nerves have undergone no alterations in size, either from age or from pregnancy. Upon this point, I am glad to have the dissections of Dr. Lee to appeal to, as proving that the nerves of the virgin uterus are as large as the nerves of the gravid uterus at the full period of pregnancy, especially when it is remembered, that these dissections were made to prove that the nerves of the virgin uterus were smaller than those of the gravid uterus. The means by which this demonstration was attempted have been already pointed out.

An objection has been made to this series of dissections, viz., that they are not sufficiently numerous to prove that no alteration takes place in the nerves from pregnancy. To those who are unaccustomed to the labour of minute dissection, this objection may appear to have some weight; but, when I know that it took me nearly twelve months, working some hours every day, to make one dissection with that care requisite to make it of any value, I am perfectly willing to leave the making of further dissections, in order to remove unnecessary objections, to those who are not satisfied with the present demonstration, begging them, at the same time, to remember, that *one* dissection, carefully made, can be depended on for the results obtained; but *twenty* dissections, hastily made, and without due care, are worse than valueless for the elucidation of the point at issue. They are valueless because they do not prove any thing satisfactorily; they are worse than valueless, because they lead to much loss of time, by provoking useless discussion.

An *à priori* objection has been raised to these proofs, on the grounds, that the nerves of the virgin uterus, being as large as the nerves of the gravid uterus, shows that some change must have taken place, otherwise "they would, if unchanged in structure, appear attenuated to an extreme degree," when stretched over the increased superficies of the gravid organ. Dr. Tyler Smith writes, ('On Parturition and Obstetrics,' p. 71,) "Those who maintain that the nerves do not increase in size during gestation, must show, not only that there is no such increase in the gravid, as compared with the virgin uterus, but they are bound to show that the nerves relatively diminish in breadth during pregnancy; for, when we consider the extent and superficies of the fully developed gravid organ, it must be evident to the meanest capacity, that as the nerves of the virgin uterus, remaining stationary as regards size, are merely stretched upon, drawn out, or unfolded over and in the enormously increased gravid organ, they ought proportionally to appear as much *diminished* as the growing tissues of the uterus are *increased* in size." Dr. T. Smith, however, appears to forget, that in order to make this a valid argument, it is necessary to show that the nerves of the virgin uterus are only of such a length as to allow of their distribution to the virgin organ. Had he *really* inspected the preparations of Dr. Lee as much as in his writings he would wish to make it appear, he he would have perceived that in the virgin uterus the nerves, when even only partially dissected, on the body of the organ, can be drawn out to a surprising length,—very much longer than is requisite to supply the virgin uterus.

Rightly considered, anatomy affords one of the best *à priori* arguments against the enlargement of the nerves during pregnancy. First, it discloses a marked folded arrangement of the nerves, both in the immediate neighbourhood of the uterus, and on the body of the organ; and, secondly, it shows a peculiar distribution of the nerves to this organ, whereby these nerves can be distributed over the uterus, when considerably enlarged, with greater facility than at first sight would appear. This peculiar mode of distribution consists of the lower third of the uterus being supplied by branches from the lower part of the hypogastric plexus; the middle third of the organ, by a distinct branch from the upper part of the hypogastric plexus, which, entering the broad ligament, reaches the uterus without any communication with the nerves lower down in the pelvis; whilst the upper third derives its branches from the renal plexus, these come down with the spermatic artery, and, after supplying the ovary, are distributed to the upper part of the uterus. In consequence of this mode of distribution, the enlarged gravid organ, when it rises in the abdomen, is brought nearer to the origin of the nerves distributed to it, and, consequently, they (the nerves) can be spread over the enlarged organ with greater facility than if the nerves had been solely derived from the lower part of the hypogastric plexus. Now, when the marked folded arrangement, already noticed, is added to this unusual mode of supply, we perceive that nature has furnished ample means whereby the nerves can by distributed over the enormously increased gravid organ without their undergoing any augmentation in size; and has thereby furnished one of the best *à priori* arguments against the enlargement of the nerves during pregnancy. An examination of the preparations themselves, at present in my own possession, would make this much more evident than any mode of expressing it upon paper can possibly do.

The only *à priori* reason which, it appears to me, can be assigned that the nerves should enlarge during pregnancy, arises from the great increase in the whole of the tissues of the organ. But this withdraws the objection to the possibility of the nerves being distributed to the greatly enlarged uterus, and places it upon a very different question, viz., the necessity for the enlargement of the nerves with the increased growth of the organ; or, in the language of a reviewer, "it certainly does seem to us anything but unreasonable to suppose that, with the enormous development of the muscular and other structures, the vast increase of the supply of blood, and the elevation in the entire functional activity of this wonderful organ, there should be a necessity for an augmentation of its nervous supply." Yet, to admit this, except upon positive evidence, would be as unphilosophic as to deny it, except upon evidence equally strong. Any arguments drawn from the supposed functions of the sympathetic cannot be considered of much weight, seeing, that with all our labours in that direction, we know, as yet, very little about it. Even should we admit the supposition, that the functions of the sympathetic "would be to regulate, through their action on the arterial coats, the afflux of blood to the organ, in accordance with its functional activity," this does not, of necessity, require the nerves to be enlarged, in order to exercise this influence on the arterial coats.—*Med. Times, January* 4, 1851, *p.* 9.

## 116.—ON THE MOVEMENTS OF THE UTERUS.

By Dr. Snow Beck.

[In his remarks upon this subject when treating of the physiology of the uterus, Dr. Beck observes:]

On considering the contractions of the uterus, I have always thought that the apt simile of the late Professor Reid, applied to another part of the nervous system, well illustrated the subject: "The movements of a horse are independent of the rider upon his back; in other words, the rider does not furnish the conditions necessary to the movements of the horse; but every one knows how much these movements may be influenced by the hand and heel of the rider." To apply this to the present subject, the contractions of the uterus are independent of the cerebro-spinal system, though every one knows how much these contractions may be influenced by the actions of this system. According to these views we have to consider—

1. The movements of the uterus; peristaltic in form, and effected through the agency of the true sympathetic system.

2. The influences which affect this movement—

a. Through the brain, as in volition and emotion.

b. Through the spinal cord, as in reflex action.

1. *The Movements of the Uterus Peristaltic in Form, and Effected through the True Sympathetic.*—Although I do not mean to say that direct irritation, acting upon a portion of inorganic muscle, will not cause the point irritated to contract, independent of the influence of the nervous system, yet the vermicular or wave-like contractions of the uterus, which spread from one part irritated over the whole organ, appear to require the influence of the sympathetic system for their proper accomplishment. "In organs partly or wholly supplied by ganglionic nerves, as the heart, bladder, intestines, œsophagus, &c., the motion produced is of a peristaltic kind, spreading generally in a vermicular manner to a distance from the part irritated, and continuing for some time after the irritation has ceased. The uterus is eminently endowed with this form of contraction."

That the contractions of the heart and intestines are independent of the action of the cerebro-spinal system is shown by a variety of evidence, part of which is the continuance of the contractions for some length of time after these organs have been removed from the body; but that the contractions of the uterus at the full period of pregnancy, or when induced by other means, are equally independent of the cerebro-spinal system, and may of themselves effect the expulsion of the child, is more difficult to be shown. Although I cannot go the length of the reviewer I have so often quoted, in saying, "The muscular action of the uterus we regard as essentially peristaltic and independent of nervous stimulation," yet I agree with the opinions in the following quotations from the same: —"That the uterus is susceptible of being excited to contraction by reflected stimulation no more proves that its ordinary actions are dependent on the spinal cord, than the influence of remote excitants upon the actions of the heart and alimentary canal proves that these actions are essentially reflex in their nature. In fact, it does not appear to us at all difficult to show, that the influence of the nervous system on the uterus is precisely of the same character with the influence of any stimulus directly applied to that organ, and is very different from the ordinary forms of reflex action, as seen in the muscular system of animal life. Thus it appears, that when uterine contraction is excited through the nervous system, it is not by a new and powerful agency taking the place of the feebler powers of the organ itself, but by the application of a new stimulus, which causes remote irritation to have the same effect as one of a direct or immediate kind; so that the peristaltic contractions of the uterus are really its only mode of expelling its contents."—As, however, much difference of opinion still exists, whether the contractions of the uterus are dependent or not for their commencement and continuance upon the cerebro-spinal system, I will give hereafter the evidence in support of both opinions.

2. *The Influences which affect the Movements of the Uterus,*—(a) *Through the Brain—Volition.*—The influence of the will upon the contractions of the uterus is sufficiently well known. Although the will has no distinct power over the uterus to cause it to contract or to stop these contractions when once established, and although the contractions will continue when the power of the will is temporarily suspended, as during coma or complete intoxication, or when under the influence of anæsthetic agents, yet every practical accoucheur must have seen cases where the influence of the will was obvious in increasing the contractions of the uterus when deficient in force, or in retarding these contractions when violent, or when they are exceedingly painful. Increasing the contractions, as when, from dread of instrumental interference, the patient exerts her will, and, adding to the efficacy of the previous languid contractions, effects the expulsion of the child without the aid of the accoucheur. Retarding the contractions, when, from the dread of the suffering they produce, the patient exerts her volition to keep them away as much as possible—in the language of the lying-in-room, "keeping back her pains." Cases similar to the following are also not unfrequent. A lady who has had two or three children, is suddenly taken in labour, and the accoucheur being from home, has to be sent for; when she voluntarily restrains the force of the contractions, to retard for a time the birth of the child. As soon as the accoucheur arrives the contractions are allowed to take their course, and the labour is quickly over, the patient telling the accoucheur that she "kept back the pains until he came to her assistance." The influence of the will is also said to affect the contractions of the uterus, when the patient voluntarily closes the glottis, and, drawing inwards the walls of the abdomen, is said to "bear down." It is undoubted that the force of the contractions is increased by this means, but it must be remembered that two influences are in action; the influence of the will, which voluntarily closes the glottis with a definite object in view, being transmitted to the uterus, and the influence of the local pressure of the uterus by the surrounding viscera, and which appears to be the more powerful of the two. It is thus the combined actions of the will and of local irritation which produce the increased contractions of the uterus in this instance, and not the single influence of volition.

*Emotion.*—The influence of emotion upon the contractions of the uterus is too well known to require much illustration. The effect of the sudden introduction of a stranger into the lying-in room, or the sudden communication of bad news, in stopping for a time the contractions of the uterus, has been frequently noticed. Whilst the cheering influence of hope, confidence in attendants, and cheerful conversation, and the depressing influence of despair, want of confidence, sudden dislike to attendants, or melancholy conversation, are all well known to the practical accoucheur. To these may be added the emotion of the mother on hearing the child's cry, or at the sight of her infant, in producing the complete contractions of the uterus. There is, however, another class of emotions which have been generally, though I believe erroneously, attributed to the influence of the reflex action of the spinal cord. I allude to the influence which is produced on the contraction of the uterus, by suddenly plunging the hand into cold water, dashing cold water upon the face, taking a large draught of cold water, &c. In these cases the increased contraction of the uterus appear to depend on the influence produced on the system by the sudden application of the cold, and not, as is supposed, upon the reflex action of the cord, it being difficult to perceive through what media this latter influence can act.

(b) *Through the Spinal Cord—Reflex Action.*—The influence of reflex action of the spinal cord in increasing, and occasionally exciting the contractions of the uterus, has been abundantly recognised by most writers on the subject; and we shall see, when considering the pathology, that these reflex actions are the chief means by which the diseases of the uterus are made evident to the patient, and recognised by the practitioner. The contractions of the uterus are influenced through this means, by gently rubbing the abdominal surface at the commencement of a pain; by applying the hand, previously cooled by immersion in cold water, to the same part; by dashing cold water on the abdomen, or upper part of the thighs; by the application of warm flannels to the abdomen; by the alternate application of cold and warmth to the abdominal surface, when it has become accustomed to the continued action of either, so as no longer to be excited by their single application; by the injection of cold or stimulating fluids into the rectum; or by the introduction of the finger of the accoucheur to the upper part of the vagina. When the finger passes to the uterus, it then becomes a local irritant, and the increased contractions are induced principally by this means, acting through the medium of ganglia of the sympathetic; yet there can be no doubt that some reflex influence is combined with that of the local irritation.

*Combined Actions.*—It not unfrequently happens that two of these modes of influencing the contraction of the uterus are in operation at the same time, and produce more effect than either singly applied. For example, *volition and local irritation* are combined in the instance already adduced, when the patient voluntarily closes the glottis, and contracts the abdominal muscles, by which means the uterus is subjected to local pressure from the surrounding viscera, and influenced by the same volition which closes the glottis and contracts the abdominal walls. It is a question, however, which I am not prepared to determine, whether reflex action is or is not added to this combined influence. That reflex action may be excited by the compression of the nerves of the abdominal muscles, in their contraction against the viscera, and so influence the uterus through the lumbar plexus, is possible; but I am not prepared to say how far the power of the will then in action may interfere with this reflex power.

*Emotion and Reflex Action* are combined when the child is applied to the nipple, and contraction of the uterus follow. Here, I have no doubt, the chief effect is produced by the emotion of seeing and feeling the child, together with the "singular feeling" which the child produces by sucking the nipple. At the same time, it is impossible to withhold the belief that some reflex action may also be induced through the inter-costal nerves acting along the splanchnic, and thence down the spermatic plexus to the upper third of the uterus. But as this reflex action can only excite one third of the organ, it is evident that the effect it will produce must be comparatively trifling. In the same manner I would explain the effect of a draught of cold water taken into the stomach, the chief effect being produced by the general emotion of the body, and a partial reflex action through the same media as in the last example.

*Emotion and Local Irritation.*—As in "taking a pain" during labour, after the patient has once felt the increased pain caused by the presence of the fingers on the upper part of the vagina. Here the emotion, caused by a remembrance of the increased pain induced, is added to the influence of the reflex action consequent upon the local irritation of the nerves at the upper part of the vagina.

The media through which the actions of the brain and spinal cord influence the contractions of the uterus are sufficiently evident on a reference to the distribution of the nerves of the uterus. There can be no doubt that it is chiefly through the branches of the lumbar plexus, which pass inwards as the white communicating cords become mingled with the fibres of the true sympathetic, and reach the uterus through the hypogastric plexus; and partly by the branches of the inter-costal nerves, transmitted to the organ by the splanchnic nerves and spermatic plexus, as already explained. It has been stated, though I believe on insufficient grounds, that the endowment of these nerves from the cerebro-spinal system becomes affected by their association with the fibres of the sympathetic; and consequently that the influence of the brain and spinal cord cannot be so readily transmitted by them. To give the quotation at length: "No anatomist, so far as we are aware, has traced any branches of the sacral nerves into the uterus itself; although it is unquestionable that branches of several nerves of the cerebro-spinal system pass into the plexuses of the sympathetic, and are in this way distributed to the organ. It may be said that the distinction is unimportant; but we cannot regard it as being so, for it is obvious that the endowments of the cerebro-spinal fibres, which enter other parts of the sympathetic system, are greatly affected by their association with it, neither sensory impressions nor motor impulses being as readily conveyed by these fibres as they are by the ordinary cerebro-spinal nerves."—Brit. and For. Medico Chirurg. Review, p. 6.

An important difference is here drawn in the endowments of the nerves, and consequently in the influences which they transmit, between the branches of spinal nerves which pass directly from the sacral plexus to the uterus itself, and those which reach the organ through the medium of the sympathetic. I am, however, unable to perceive any foundation for this opinion. It is said that motor impulses are not so readily conveyed by the cerebro-spinal fibres which enter into the sympathetic system as they are by the ordinary cerebro-spinal nerves. Certainly we have not the same motor power over the organs supplied by the sympathetic system as we have over the voluntary muscles. But it is nowhere shown, that I am aware of, that this depends on an alteration of the endowments of the cerebro-spinal fibres, and not on the anatomical condition of the organs themselves. We can easily understand that the voluntary striated muscle would be much more obedient to the motor impulses from the brain than the inorganic non-striated muscular fibre, although the media by which this impulse was transmitted remained the same in both cases.

It is also stated, that the transmission of sensory impressions is interfered with by the presence of ganglia upon the nerves which transmit these impressions, assigning to the ganglia the office of "cutting off sensation." As, in the transmission of motor influences, it is nowhere shown, so far as I am aware, that this diminished sensory impression does not depend upon the anatomical condition of the organs which furnish this impression, and not upon the presence of the ganglia in the course of the nerves. We can readily believe it possible that the ultimate distribution of the cerebro-spinal filaments upon an organ, chiefly supplied by the sympathetic nervous system, may be different from the distribution which is followed in an organ immediately under the influence of the brain, and chiefly supplied by the cerebro-spinal fibres; and that this anatomical condition may influence the transmission of sensory impressions. It is certainly contrary to the view which assigns to the ganglia the office of "cutting off sensation," to find one of these ganglia always seated on the posterior or sensitive roots of the spinal nerves. In this situation, it in no way interferes with the "sensory impression" transmitted from all parts of the body. Why, then, should it be considered to do so when seated in the abdomen?

In considering this question, we ought not to overlook, that the amount of cerebro-spinal filaments distributed to an organ supplied by what is ordinarily called the sympathetic system, is considerably smaller than that which is furnished to an organ supplied by the ordinary cerebro-spinal nerves. And, as the degree of sensory impression transmitted from an organ, and the amount of motor influence which can be exerted over an organ, bears a close relation to the amount of cerebro-spinal filaments furnished to the part, so we have another reason for the fact under consideration, without attributing to the sympathetic ganglia the office of altering the endowments of the cerebro-spinal filaments with which they are commingled. During some of the diseases of the organs supplied by the sympathetic, or during the healthy actions of the uterus in parturition, the sensory impressions are transmitted with sufficient acuteness in the severe pains which are experienced. It cannot be considered that the ganglia exercise the office of "cutting off sensation" at these times; why, then, should it be considered that their office is altered during health?

But to pursue this subject further would lead to an examination of the comparative anatomy of the nervous system in the lower classes of animals, which forms no part of the present inquiry, but which I hope to take up on another opportunity.

To recapitulate what has been stated. The motor powers of the uterus consist solely of the peristaltic contractions of the organ, which are dependent for their full production upon the nerves and ganglia of the true sympathetic; yet these peristaltic contractions may be influenced by the brain, as in volition or emotion; by the spinal cord, as in reflex action; or by a varying combination of these influences. The media through which those influences act upon the uterus, being the branches of spinal nerves sent inwards to the viscera. This, however, introduces the question which has been deferred, viz., Are the contractions of the uterus dependent or not upon the cerebro-spinal system for their continuance?—*Med. Times, January* 25, 1851, *p.* 89.

---

117.—*The Cause of the Contractions of the Uterus.* By Dr. T. Snow Beck.—[There seem to be two distinct opinions held upon this subject. 1st. That the contraction of the uterus depends upon the influence of the cerebro-spinal system. 2nd. That they are independent of the cerebro-spinal system, although they may be influenced by it.

On reviewing the evidences in favour of the first opinion, viz., their dependence upon the cerebro-spinal system, we have—]

(A) The experiments, which show—

(a) That the division of the spinal cord in the dorsal or cervical region will only cut off the influence of the brain, *i. e.*, volition and emotion, from the actions of the uterus.

(b) That the lower portion of the spinal cord remaining entire, the reflex actions of the cord will not be withdrawn from the uterus.

(c) That with this condition the uterine contractions were arrested: hence,

(d) That the "shock" of the operation was sufficient to arrest the uterine contractions during the few hours which the animal lived.

(e) That by irritating the uterus and spinal cord by galvanism, or irritating the lumbar portion of the cord by the introduction of a stilette, the uterine contractions were partially recalled.

(f) That in the guinea-pig, integrity of the lumbar portion of the spinal cord, and destruction of the sacral portion, did not prevent the contractions of the uterus, nor the process of parturition being accomplished.

(B) The cases of disease, which show—

(a) That disease of the cervical or upper dorsal regions of the spinal cord, sufficient to produce paralysis, prevents the pains of labour being felt.

(b) That, notwithstanding this, the contractions of the uterus proceeded regularly in their course, and apparently unaltered in force.

(c) That in these cases the influence of the brain alone would be cut off; the lower portion of the spinal cord remaining entire, the reflex action will not be destroyed.

(d) That disease, seated probably in the lower part of the cord, or cauda equina, sufficient to produce paralysis of the lower extremities, does not prevent the pains of labour being felt, nor interfere with the uterine contractions.

(C) The experiments and cases of disease together show—

(a) That in every case the reflex action of the spinal cord was present; hence

(b) That they supply not the least evidence "that the contractions of the uterus are dependent on the cerebro-spinal system:" hence

(c) That the solution of this problem must be sought by other means. —*Med. Times, Feb.* 15, 1851, *p.* 178.

118.—*Case of Difficult Labour in consequence of Twins joined by the breast.*—By Dr. Charles Stuart, Chirnside, Berwickshire. [This was a case in which Dr. Stuart found the head presenting in the first cranial position and every other feature of the labour apparently very favourable, though he found that the strength of the pains was remarkably decreased on the patient laying down, although the pains on her moving about in the erect position were very violent.]

The cranium advanced with extreme slowness, considering the strong nature of the pains; and it was only after the most severe straining that the head began to press on the perinæum, and after a very tedious passage was born about seven o'clock P.M. The pains previous to this were of the most frightful description, and they were now, if it was possible, increased. Some apparently insurmountable obstacle seeming at this stage to oppose the further exit of the infant, I tried by every means in my power to discover the cause of delay, but from the extreme tightness of the parts it was impossible to ascertain its nature. I dreaded, from the enormous straining, that the uterus would speedily rupture, unless delivery was imediately effected, so accordingly I applied at first gentle traction; but, when I found that unavailing, I was forced to increase it to what previously I would have considered a most warrantable degree, and succeeded in delivering the shoulders, when for the first time I discovered something unusual. I continued, however, my traction as my only hope of getting the woman delivered; and, after using the greatest force, I was in no small degree astonished when another head came down, with the face considerably flattened. This second head lay twisted round upon the back of the first delivered infant. After further perseverance, I succeeded in extracting two males, still-born, and intimately joined from the sternum to the umbilicus, into which an umbilical cord, common to both, was inserted. The placenta speedily followed, and was not larger than is usually seen in cases of twins. The umbilical cord was rather thicker than usual. About an hour elapsed from the time the head was born till the delivery was completed. The pains during that period were of the most agonizing and alarming character, and made me regret exceedingly having no chloroform. After a careful examination of the external parts, I was very glad to find no perineal laceration, which I feared very much from the passage of such a mass. The twins were at the full time, and fifteen inches long. The band of connection extended from the upper part of the sternum to the umbilicus, and was seven inches broad and three long; and the diameter of the twins, when laid together, was six and a-half inches. They were perfectly and fully formed in other respects, but the head that presented first was the larger of the two. I failed in obtaining permission to make any more particular examination.

When we consider the breadth of the connecting band between the two children in the above case, we see more clearly how the head of the second child could assume the position that it did, and to what an extent the connecting band must have been stretched to have allowed of its being placed at the back of the shoulders of the other child when delivered.

My patient is a woman of slender figure, but well formed, and of good constitution. During her pregnancy she enjoyed excellent health, which in some measure strengthened her for the extreme trial she had to undergo, and which she endured with the greatest fortitude.

She has made a most excellent recovery, and is now quite strong.

No doubt the long delay before the head was born, in a great degree saved her from the danger of perineal laceration, as there was ample time for complete dilatation, which was so essential for the safe passage of such a mass as had to follow.—*Monthly Journal of Med. Science, January*, 1851, *p.* 5.

---

## 119.—ACCOUNT OF A CASE IN WHICH THE CÆSAREAN SECTION WAS PERFORMED:

### WITH REMARKS ON THE PECULIAR SOURCES OF DANGER ATTENDANT ON THE OPERATION.

By Dr. Charles West, Physician-Accoucheur to St. Bartholomew's Hospital, and Lecturer on Midwifery in the Medical College.

[In this case the patient was twenty-seven years of age, whose health had always been indifferent, though she was not apparently deformed; the only symptoms calling attention to the osseous system were pains of a rheumatic character, and difficulty in walking. When labour came on at the full period of utero-gestation, the pelvic deformity was ascertained and the propriety of the Cæsarean operation decided upon by Mr. Wren, Dr. West, Dr. Murphy and Dr. Ramsbotham. It was accordingly performed by Mr. Skey fourteen hours after the commencement of labour, and eight after the rupture of the membranes.]

The patient was, by her own desire, subjected to the influence of chloroform before the operation was begun; no difficulty was experienced in its performance; and a living female child was extracted. Very formidable hæmorrhage succeeded the removal of the placenta; and the subsequent contractions of the uterus were very tardy in their occurrence. The patient was left in a state of great exhaustion, from which she never completely rallied, and died in 108½ hours after the operation, apparently from the conjoint effect of hæmorrhage during the operation, and of the shock to the nervous system. The treatment had consisted in the adminstration of stimulants and nourishment, both by the mouth and in enemata; and the patient was kept in the same manner almost throughout under the influence of opium.

The body, on examination after death, presented no evidence of serious inflammation; but the uterine wound was gaping widely, and even that of the abdominal walls was but partially closed. The pelvis presented, in a most marked degree, all the characteristics of that deformity which is produced by mollities ossium; the pubic bones being projected into a beak 1·2 inches in length; the width of the pubic arch being reduced to 0·6 of an inch, and the distance between the tuberosities of the ischia 1·2 of an inch.

The writer, having noticed the high maternal mortality resulting from the Cæsarean section, and which he estimates at much more than the number of 63 per cent., at which the statistics of all cases recorded since 1750 places it,—since the results of cases occurring in hospitals abroad yield a maternal mortality of 79 per cent., ~~and~~ of cases in this country of 85·4 or 87·5 per cent., according to two different estimates,—proceeds next to point out the causes, apparently inevitable, of this high mortality.

These causes he refers to four heads; and illustrates their respective influence by reference to a Table of 134 fatal cases, in which the body was examined after death. The four heads are as follows:—

1st. The danger arising from hemorrhage, which proceeds from a source different from that whence bleeding takes place in any other operation, and which is not capable of being arrested by the same means as suppress it under ordinary circumstances.

2nd. That dependent on the shock inflicted on the nervous system, as well by the violent interference with the most important process that ever goes on in the organism within the same limited time, as by the injury to a part so important, and so richly supplied with nerves, as the uterus of a parturient woman.

3rd. The hazard inseparable from extensive injury to the peritoneum, when unblunted in its sympathies, and unaltered in its texture, as in cases of ovarian or other tumours, for the removal of which a similar exposure of the abdominal cavity is sometimes practised.

4th. That which results from the infliction of a wound on the uterus at a time when, in the ordinary course of things, the processes which nature is prepared to carry on in it consist in the disintegration and removal of its tissue; processes the very opposite to those essential to the repair of injury.

From a consideration of all these sources of danger, to the last of which attention has hitherto scarcely been directed, the author arrives at the conclusion that they being so serious, and so beyond the power of art to prevent, the rule which forbids the performance of the Cæsarean operation wherever there is a reasonable probability of accomplishing delivery by the natural passages, is founded on solid grounds, and ought to be adhered to.

[At the meeting of the Royal Medical and Chirurgical Society after the reading of Dr. West's paper, Dr. Lee, after enumerating many cases, all of which showed the dreadful fatality of this operation,]

Proved how useless this operation had been, and the great advantage to be derived from the induction of premature labour in such cases, as proved by the experience of the best midwifery practitioners. Dr. Lee himself induced it twelve times in one woman, with perfect safety: and had read that morning an account of fifty other cases similar in result. Dr. Merriman remarks, respecting the induction of premature labour, that nothing is more easily done, and that it renders the Cæsarean section unnecessary and unwarrantable. Dr. Lee, in continuation, observed that Dr. Denman mentions a whole family in the Strand born by this process, and remarked, that it is not a thing well known, viz, its induction in cases of high distinction. He said, in cases where the pelvis was so much distorted that the child could not pass at the seventh month, labour should be induced at the fourth or fifth; for that it was consistent with reason and humanity to preserve the life of the mother, and produce abortion. He (Dr. Lee) did not consider pelvic deformity the only case applicable to this line of practice, but also cases where tumours or cicatrices obstructed delivery, as well as in cases of organic disease of the heart. Dr. Lee said his object was to show the society that the operation of inducing premature labour was both safe and easily performed. From the paper now read it appeared Mr. Wren had seen Mrs. Williams for five months labouring under mollities ossium of the bones of the pelvis. Many cases occurred in which there was no bending of the spine, but with pain about the pelvis, gradual inability to walk, being obliged to be carried from place to place; that it appeared to him that it had never crossed Mr. Wren's mind that a destructive disease was going on in the bones of the pelvis. Dr. Lee cannot believe but that, if Dr. West had seen the case in the seventh, or even the eighth month of pregnancy, some other course would have been pursued; but Dr. Lee must believe the disease was not recognised. In another case it was known that this disease existed. Mr. Skey operated; and Dr. Lee asked why in this case was not premature labour induced? Mr. Jolin, a surgeon, on seeing the case, detected pregnancy, and the woman's very unfavourable situation. The antero-posterior diameter of the pelvis only being one inch and one-third, no reason was perceived why in this case premature labour was not induced. Dr. Rigby also had seen the case. The woman was kept for three months in St. Bartholomew's Hospital. Dr. Lee did not know why premature labour was not induced in this case, but it appeared to him to have been the fashion to do those grand things; but that he stood there to advocate the cause of humanity. Dr. Lee next mentioned a case where a woman afflicted with mollities ossium was seen during her first pregnancy by several practitioners in Scotland. Dr. Simpson, of Edinburgh, was also sent for, and saw the case. Nothing was done for her; she was allowed to go to the full period. When Dr. Simpson was again sent for, he arrived with needles, sutures, lint, ether (for chloroform was not then invented); but before he reached the patient's house she had been delivered by natural efforts.

Dr. West considered Dr. Lee's statement was a sort of challenge, which required an explanation. He should not like any one to leave that meeting supposing he was an advocate for the Cæsarean section; and as to the induction of premature labour in this case, he did not see it till labour had set in. The object which he had in bringing the case before the Society, was to see if any other course, under the circumstances, could have been adopted, so as to have averted the fatal result. He apprehended that all teachers of midwifery in London taught the necessity of inducing premature labour in such cases, and he should be sorry to sit down supposing that any one believed he underrated the value of the induction of premature labour; but, having found a case like the present one, he was anxious to hear the opinions, as to whether any better treatment could have been pursued, from some of those experienced midwifery practitioners who were present.—*Med. Gaz., Feb.* 7, 1851, *p.* 245.

120.—*A Case of Cæsarean Section.*—By DR. HENRY OLDHAM, Lecturer on Midwifery at Guy's Hospital.—The subject of this case was a rickety deformed girl, æt. twenty-three, unmarried, pregnant with her first child, and seven months gone in gestation when first seen by Dr. Oldham. On examination, the pelvis was found to be reduced two inches in its conjugate diameter, and the uterus was much anteverted. The membranes were punctured for the induction of premature labour in a few days after she was seen, September 23rd, 1850. On the following morning the left arm was found in the vagina, but labour did not come on until nine A.M. on the 26th. In twelve hours the os uteri was dilated, and then some attempts to deliver her were made. The child could not be turned; but by drawing down the protruding arm, which, from commencing decomposition, soon gave way, and pressing the abdomen from below, the head was brought over the brim, and was at once perforated. For four hours the crotchet was employed both inside and outside the head, the bones of which were completely torn up; but without drawing it through the brim. At this time a new impediment was found to have arisen, from the descent of the right hand and a foot by the side of the collapsed head into the pelvic brim; and on watching the effect of labour pains, all these parts were felt to be squeezed together in the narrow inlet of the pelvis, each preventing the other's descent. It was attempted to bring down either the foot or hand, but only the slippery tips of each could be touched, and they could not be moved. The patient had now been seventeen hours in labour, and it became a question for serious consideration and consultation, whether she would be able to sustain the necessary efforts for her delivery, and whether it would not be for her benefit to perform the Cæsarean section before exhaustion came on: which at length was determined on. The operation was performed by Mr. Poland without difficulty, and with little hæmorrhage; the patient being under the influence of chloroform. The incision, five inches long, was slightly curved, and a full-sized seven months fœtus was removed, and afterwards the placenta and membranes. For two days the patient did well; but then exhaustion came on, and she died. While she lived she was kept under the influence of opium, and was sustained by simple cold drinks. On post-mortem examination there were some slight traces of peritonitis near the uterus. The external opening was closed, and its edges adherent; but the uterine incision was gaping. The larger omentum was indurated and inflamed, and so drawn across the uterus above the incision as to prevent any discharge from the latter organ escaping into the peritoneal cavity.

Two practical questions were suggested by this case—1st. What was the best plan to attempt to follow out in the delivery at first. 2d. Were the complications such as to justify the Cæsarean section.

With respect to the first, two plans of treatment might be adopted:—1st. To induce labour, and deliver by craniotomy. 2d. To allow her to go to term, and then perform the Cæsarean section. In determining in favour of the former, the author was guided by the great probability, with a conjugate diameter of two inches, of being able to deliver with the crotchet; and he considered that his inability to do so arose from the complex presentation.

With reference to the second, he was induced to have recourse to the Cæsarean section, from a conviction that the patient would probably sink under the prolonged efforts at delivery; and a case was related which occurred in the Lying-in Charity at Guy's, under Dr. Ashwell, where a woman with a far less contracted pelvis died undelivered, after the most powerful and sustained efforts to relieve her. It was remarked that the girl had but a feeble constitution, which would ill support so hard a trial of its powers; and the condition of the vagina was particularly noticed, as retaining the marks of early age, being structurally weak, and easily lacerable, and most unfavourable for a long craniotomy operation. Under these circumstances the Cæsarean section offered a speedy and sure, instead of a prolonged and doubtful delivery; it was not yet forbidden from exhaustion or any signs of inflammation; on the score of suffering it contrasted most favourably with the persistence in the use of the crotchet; and, upon the whole, it was judged to offer a better chance of ultimate success.

The curve in the incision was suggested to catch the outline of the muscular fibres on the inner surface of the uterus, and so favour the closure of the wound The scanty hæmorrhage in the operation was in a measure accounted for by the uterus being at the seventh instead of the ninth month; by the placenta being attached to the posterior wall, and the uterus being opened low down towards the cervix where the veins were less developed. Chloroform was said to be a gain in every way, and the after-treatment by opium appeared satisfactory.—*Med. Gazette, February* 21, 1851, *p.* 338.

## 121.—ON FIBROUS TUMOURS.

### By George Murray Humphry, Esq.

[With the exception of the fatty, the fibrous are perhaps the most common of the simple growths. They resemble the natural fibrous tissue as found in areolar membrane, in ligaments, tendons, &c. Their microscopical examination is also distinctive. In some instances, the fibres are disposed more or less concentrically. These tumours generally do not attain to a very large size. In other instances, the component fibres interlace in a complicated irregular manner. These kinds may attain to a very large size; they are commonly round. In a third, but more rare class, the tumour consists of an aggregation of small nodules, or masses closely compressed together, having an uneven, knotty outline, and looks like a conglomerate gland.]

When you examine fibrous tumours with the naked eye you may observe that many or most of them consist of two structures; viz., dense, opaque fibres, or bands, coursing about and interlacing in the midst of a more clear, hyaline, softer substance; the latter being contained in the meshes formed by the interweaving of the former, much in the same way that the fatty is related to the fibrous element of an adipose tumour. The actual difference between these two components of fibrous tumours seems to depend upon the larger quantity of fluid—serous or aqueous fluid—which exists in the softer substance; and the proportion which this substance bears to the rest of the mass varies exceedingly. In some instances it is scarcely perceptible, the tumour appearing to consist almost entirely of the tough, opaque, fibrous element; in others the latter structure forms but an insignificant part, or may not even be distinguished at all in the soft, succulent, cellular mass of which the tumour consists. When a tumour of this latter kind is opened, and the fluid allowed to drain away, the mass shrinks, and soon loses a half or two-thirds of its weight. Now and then the fluid is contained in distinct cysts with smooth walls, lying in the interstices between the interlacing fibres; thus constituting one of the forms of "sero-cystic sarcoma." I have already suggested the probability that these cysts are formed by an enlargement and alteration of the cells of the areolar tissue entering into the composition of the tumour, in the same manner as ganglion, supplementary bursæ, and other serous cysts of the like kind.

In by far the greater number of cases fibrous tumours are invested with distinct capsules of compressed areolar tissue, which surround them on all sides, and isolate them from the surrounding structures. In some instances no such bar of separation exists; on the contrary, there may be a manifest continuity between the tumour and the tissue in which it is imbedded, affording great probability that the one has originated in a morbid or hypertrophied condition of the other. Such is the case with some of the uterine tumours to which I shall presently direct your attention.

Fibrous tumours vary so much in the compactness of their structure, and the mode of arrangement of their fibres, that in the classifications of tumours made by Abernethy and succeeding pathologists, the several members of this class were arranged in separate divisions. The name "cellular sarcoma," or "vascular sarcoma," was given to those in which the structure was soft and succulent, resembling the common cellular tissue, the chief bulk and weight of the mass being dependent on the larger quantity of fluid contained in the spaces between its solid elements. Tumours of this kind grow, as we might expect from their structure, more quickly than the other varieties of the class; they are found generally in parts where the cellular tissue is naturally lax and abundant—in the scrotum for instance, and in the labia pudendi, occasionally in the ovary, or in the cellular tissue surrounding the lower part of the uterus and the vagina. They are generally invested with a thin capsule, which separates them from the surrounding parts; their connections are loose, and though they may attain very large size, they are easily dissected out. The capsule is not, however, always present; on the contrary, the tumour may be blended with the surrounding cellular tissue, so that it is not easy to define its limits very clearly. Those enormous tumours of the scrotum which are occasionally met with in this country, and are more common in warm climates, appear to be of this nature, and they serve to illustrate the opinion I have expressed with regard to the nature of tumours generally, for they evidently consist of a thickened condition of the cellular tissue of the scrotum, excited, perhaps, by chronic inflammation, or some long-continued irritation, or they may take place without any obvious cause. The testicles and penis are commonly buried in these masses. Sometimes the skin is affected in a similar manner, becoming greatly thickened and tuberculated, so as to present the usual appearance and characters of elephantiasis. When an incision is made into a scrotum thus diseased, a large quantity of serous fluid drains away, and the size of the mass soon diminishes. I have occasionally met with ill-defined tumours under the skin of the face and in other parts of the body, which I could account for only on the supposition that they depended upon a hypertrophic condition of a small portion of the subcutaneous cellular tissue. You will perceive that there is a near relation between tumours of this kind and that thickened condition of the areolar and fibrous tissues which occurs in warts, polypus, pterygium, and the like; indeed we cannot draw any clear line of distinction between them.

Another species of fibrous tumours has been called the "mammary sarcoma," from the resemblance of the tumours to udder; their fibres being interwoven so as to form a toughish, doughy, pale mass, intermediate in consistence between the cellular sarcoma and the tumours next to be described. The specimens of mammary sarcoma are generally found in the neighbourhood of the breast; they have been known to attain a very large size, and are usually capsulated.

The third species of fibrous tumours, which is by far the most common, and in which the characters of the class are most strongly marked, was not distinguished by Mr. Abernethy with a particular name. These tumours are remarkable for their great hardness, and on this account are very often described under the name "scirrhus," a word which has been so indiscriminately used in former times as to have retained hardly any definite meaning at all, but which is now by all accurate pathologists applied exclusively to one of the varieties of cancer; they are more frequently found in the uterus than in any other part of the body, and were described by Dr. Baillie under the name of the "fleshy tubercle of the uterus;" the term "fibro-calcareous" has also been applied to them, because of their liability to undergo calcareous degeneration, a peculiarity which I believe is not shared by either of the other varieties of fibrous tumours.

In each of these species there is a general correspondence to be remarked between the characters of the tumours and those of the tissues in which they grow. Thus the soft, succulent, "cellular" tumours are found in the loose cellular tissue of the scrotum; the "mammary" tumours are found in or near the breast; and the last variety, the "fibrous" tumours—strictly so-called—are found in the uterus, among tendinous structures, in the periosteum, and in the dura mater.

The characters of these three species of fibrous tumours are so far distinct that I have thought it worth while to direct your attention to them; at the same time you should know that the intervals between them are filled up by intermediate gradations, just as it is in natural structures with regard to the areolar and fibrous tissues. Here, for instance, is a round tumour growing in the tough cellular tissue which forms the soft strong padding at the extremity of a finger: it is scarcely hard enough to belong properly to the third species just mentioned, yet it is too firm to be classed with either of the other two; and you will find many specimens not strictly included in either of these species, but serving to connect them more closely together.

You will obtain a more clear idea of the general characters of fibrous tumours, and the changes they undergo, if I give you a description of them as they affect the uterus. They are found in this organ more frequently than in all the other parts of the body; they occur in the body, the neck, and the os; very often in the former, comparatively seldom in the latter. The tumours are seen lying beneath the peritoneal and mucous coats, as well as at various points in the thickness of the uterine wall. They are for the most part very firm, or even hard; and the sections show the closely-compressed, opaque, wavy fibres, in great numbers coursing about in various directions, interlacing and enclosing, in the small intervals between them, some clear, soft, vitreous substance. The fibres are packed together so closely that it is difficult to separate them from one another; and they form compact heavy masses. The tumours are generally round; when single they are so almost invariably; when two or more exist together their shape is altered by mutual pressure. Often they exist in considerable numbers, compressing one another, and converting the uterus into a lobulated misshapen mass, which may be so large as to exceed the size of the organ at the full term of pregnancy. They exhibit scarcely any traces of vascularity; indeed vessels can seldom be detected in them, although the uterus may have been minutely injected; neither is there any preternatural vascularity in the surrounding uterine tissue. The tumour is surrounded on all sides by a capsule of areolar tissue, from which delicate filaments pass into its substance, and form the bond of union between the two. These filaments are easily torn, and the tumour may without difficulty be enucleated or turned out of its capsule. Towards the exterior the structure of the capsule becomes gradually more coarse, and at last its fibres are blended with those of the uterine tissue. The wall of the uterus is stretched over the tumour, and, as already described, is very often thickened at the same time. Various changes also are produced in the uterus, according to the size and position of the tumour. In some instances it is greatly elongated, perhaps curved at the same time; or it may be shortened and spread out. In one of these specimens the Fallopian tube is so stretched as to be eleven inches long, though it still retains its natural thickness.

When the tumour is situated near the exterior of the uterus it projects into the abdominal cavity, carrying before it the peritoneum, together perhaps with a thin layer of uterine tissue. In process of time the tumour, gradually projecting more and more, may become pediculated; as in this instance, where a large fibrous tumour hangs from the left cornu of the uterus by a pedicle thinner than one's little finger. Under such circumstances the tumour is likely to contract adhesions to the adjacent viscera, and in some instances it has been known to be quite detached from the parent organ and transplanted as it were to a new soil. When this has taken place, I believe the tumour always ceases to grow and becomes calcified.

In like manner, when the tumour is situated near the internal surface of the uterus it projects into the cavity of the organ, carrying before it the mucous membrane, with perhaps a thin layer of uterine tissue. As it increases it projects more and more into the uterine cavity, where the resistance is least, its basis of attachment to the uterus gradually narrows and at last forms a mere pedicle. In this manner is formed the *fibrous* polypus which differs from the *mucous* and *uterine* varieties of polypus described on a former occasion, inasmuch as it is the result of a fibrous tumour forcing its way into the cavity of the uterus. According to the views of the nature of tumours which I have given you, it really differs from that which is called the 'uterine' polypus less than is generally supposed. As the tumour grows it distends the organ, which increases in size and in the thickness of its wall as much as it does in pregnancy. Gradually the cervix becomes widened as well as the body, and in course of time the tumour presents at the os uteri, which dilates so as to permit it to pass into the vagina. The comparatively unsupported weight of the tumour now dragging on the pedicle, causes its further elongation, so that the body of the uterus becoming thereby rid of the mass. is able to return to its natural contracted state, while the os and cervix remain expanded over the upper surface of the tumour, as they had before embraced and supported its lower end. So long as the tumour remains in the body of the uterus and is supported by the os and cervix, its pedicle does not undergo much elongation; indeed, it appears that while the tumour is in this position, it does not generally become pedunculated at all, though some specimens in the College of Surgeons and in other museums, show that it may do so occasionally. After it has reached the vagina the pedicle soon becomes narrowed and may even give way, allowing the tumour to escape and affording a spontaneous cure of the disease. Fibrous polypi grow generally from the fundus of the uterus and by their weight dragging upon this part, may cause inversion of the womb: even a small tumour has been known to produce this effect, owing probably to the expulsive action of the organ induced by it.

A fibrous polypus consists, therefore, of a fibrous tumour, which, projecting into the interior of the uterus, has become pedunculated. It corresponds in structure with the fibrous tumours growing in other parts of the uterus, though I think its structure is not generally quite so dense. It is covered by the mucous membrane of the uterus reflected over it, together perhaps with a thin layer of uterine tissue; these converging at the upper part of the polypus, pass from it to the uterus, and constitute the pedicle, which is generally narrowest at the middle, expanding below over the polypus, and again expanding above where it is connected with the uterus. The pedicle thus consists entirely of stretched uterine structure, forming, in reality, no part of the polypus, which explains the fact of its not being necessary to remove the entire pedicle in order to prevent a return of the disease after operation. The mucous membrane covering the polypus is sometimes very vascular, so as to bleed profusely when it is lacerated or superficially ulcerated. This was the case with a patient lately in the hospital, who had been greatly reduced by repeated hæmorrhages and continual oozing of blood from the vagina; on examination I found a fibrous polypus presenting at the os uteri, and the lower end of the tumour rough from superficial ulceration.

The os was sufficiently dilated to permit the introduction of the finger and Gooch's canula, with the assistance of which the tumour was tied at its upper end, and the patient quickly recovered.

Under ordinary circumstances fibrous tumours occur in considerable numbers in the same uterus; in some of these specimens there are five, six, or even more, indeed they are rarely single, except when they project into the cavity of the uterus, and distend its walls; there is then commonly only one tumour. This exception is a matter of some practical importance, inasmuch as it gives us greater confidence that we may be able to effect a permanent cure by our operations upon polypi, and that the patient will not be troubled with relapses from the presence of other tumours. I do not mean to say that such is invariably the case, for you will every now and then meet with an instance of fibrous polypus, associated with fibrous tumours in other parts of the uterus, and such a coincidence may be adduced as an argument in favour of the view which regards the polypus to be of the same nature with the tumours, but it is certainly not the general rule. I am not aware that this observation has been made by other writers on the subject. The only explanation I can offer of it is, that the distension to which the uterine structure is subjected from the formation of one tumour in its interior, is not favourable to the growth of others in its wall; for the same reason we find that new growths do not occur in the stretched uterine tissue surrounding a tumour so often as in other parts of the organ.

In the greater number of cases the fibrous tumour in the uterus consists, as I have said, of a firm globular mass growing from one centre without any peripheral processes or lobes; this, however, is not their constant character. Sometimes there are several nuclei, forming distinct masses, closely packed together. Here is a specimen of an uneven, granulated, or finely lobulated tumour in the fundus of the uterus, which appears to consist of a number of separate masses less closely packed: it looks something like a salivary gland, but is of firmer structure.

Again, fibrous tumours are generally distinct from the surrounding uterine substance, and separated from it in their whole circumference by a well-marked capsule. Exceptional cases, however, do occur, in which the line of demarcation between the tumour and the uterine tissue is less marked, in which the tumour manifestly consists of an altered state of the uterine tissue, and in which the tumour enlarges, partly at least, by an extension of that altered state to the peripheral structure. In this specimen the tumour consists of a thickened, coarse, hypertrophied state of one side of the fundus uteri. Rarely is the os uteri the seat of fibrous tumour at all, but when it is so the tumour, so far as I have been able to ascertain by the examination of specimens in different museums, consists of an enlargement of one or both lips of the os uteri, the posterior lip being most frequently affected. The tumour thus formed partakes of the usual characters of fibrous tumours, except in the continuity of its structure with the uterine tissue; it may attain to a very large size, filling the vagina, or even projecting externally. In the museum of St. Bartholomew's Hospital is a specimen showing the whole circle of the lower end of the uterus enlarged into a fibrous tumour which projected into the vagina and encloses the aperture of the os in its centre.

All the changes to which fibrous tumours are liable may be observed in those affecting the uterus. They are,—calcareous degeneration, softening, and the various effects of inflammation.

Calcareous degeneration commences with the appearance in the substance of the tumour of one or more small grains of hard straw-coloured substance, consisting of carbonate, with some phosphate of lime. They are generally near the centre of the mass at first, and gradually extend towards the circumference; they increase at the expense of the fibrous structure and are evidently the result of a transformation of it—a conversion of the fibrous into earthy matter—perhaps bearing some analogy to the gradual ossification of cartilages and ligaments which goes on in declining years; though it is to be remarked that the grains of earthy matter do not seem to be disposed in any definite orderly manner, at any rate the masses composed of them do not show anything like so complicated a structure as we find in bone. The change must be regarded as an evidence of degeneration rather than of advancing development, and the term calcification or calcareous degeneration is, therefore, more appropriate to it than ossification. In course of time the earthy grains enlarge and coalesce, forming very hard, branching, knotty masses, like coral, of straw colour. They are closely connected with the remaining substance of the tumour, indeed they are continuous with it, so that they cannot be cleaned without great difficulty, or the help of maceration. Such masses may attain to considerable size, involving the greater part of the tumour, but they generally contain enough of the fibrous structure in their interstices to disclose their real nature. In a few instances the calcareous degeneration has commenced upon the surface of the tumour, and I have seen one case in which it had converted the outermost layers of the tumour into a hard shell, enclosing the central part like a kernel. It may take place in the tumours which project into the peritoneal cavity, or in those which hang polypose into the uterus; but I have not met with an instance in which it affected a tumour formed by the hypertrophy of an appreciable portion of the uterus, such as these originating in the os uteri just mentioned. Neither have I known it to occur in the cellular tumours, in the mammary sarcoma, or in any of the softer varieties of fibrous tumours.

Softening appears to take place in two ways: first as a chronic process, affecting some circumscribed portion of the tumour, which is usually at or near the centre. The change is observed to commence with a slight discolouration—a yellowish or dark tinge—which is followed by a loosening or incipient disintegration of the structure; at the same time a line of demarcation is formed round the altered portion, which becomes separated like a sequestrum from the surrounding mass. Both the detached portion and the cavity are at first rough and shreddy on their opposed surfaces; the former undergoes still further disintegration and solution, becoming broken up into a number of small fragments, which float about in a dark, dirty, turbid fluid, and which may, ultimately, quite disappear. The several stages of this process are remarkably well shown in different tumours of the same uterus by a specimen in the pathological museum of Guy's Hospital; and there is in the museum of St. Bartholomew's Hospital a fibrous tumour of the uterus, which seems at one part to have undergone the changes just mentioned, for it contains near the centre a circumscribed cavity, with a flocculent lining composed of the partially disintegrated structure of the tumour. This cavity is said to have contained a serous fluid, so that if it were formed in the manner I have suggested, a portion of the tumour must have undergone absorption as well as complete solution. The process of destruction may go on in the adjacent portion of the tumour, enlarging the central cavity, till the whole is reduced to a fluid or semifluid mass walled in by the cellular capsule of the tumour, which now stands in the relation of a cyst-wall to the disorganised contents. Uterine tumours, which have undergone this change in a greater or less degree, have more than once been mistaken for ovarian cysts, and tapped accordingly. There is a specimen in the museum of the College of Surgeons, with a history appended, to the effect that an encysted tumour formed in the uterus, and the patient was twice tapped and the cyst emptied, the disease having been supposed to be ovarian dropsy during life; it was, probably, a case of the kind I am now describing, if we may judge from the appearance of the sac, and from the knowledge that cysts are very rarely produced in the walls of the uterus. In some instances the softening process is completed at one spot without extending to the circumference; the ragged processes hanging into the interior of the cavity are removed, the latter acquires a smooth lining, and looks like a simple cyst lying in the substance of the tumour. You must not mistake for cavities thus formed, the vacancies occasioned by enucleation of portions of the tumour after death. It is necessary to give you this hint, because I have known such an error to have been made.

The second mode in which softening takes place is more rapid and more diffused; the whole or greater portion of the tumour being affected at once. The change commences with the infiltration into the mass of a serous fluid, whereby its texture is loosened, and its components separated; at the same time the tissue of the tumour is softened, and interstitial absorption is set up in it. As the result of these processes combined, the tumour is soon broken up into detached fragments, and reduced to a diffluent pulp, or, it may be, completely liquefied. It may even burst into the cavity of the uterus or the abdomen, and its contents be discharged. These changes are probably occasioned by some altered state of nutrition analogous to inflammation; they may be induced by an accidental cause, an injury, or pregnancy, and purulent fluids are sometimes found mixed up with the softened substance of the tumour. Nevertheless, they are not necessarily attended with any constitutional disturbance at all corresponding with the extensive destruction which is in progress.

The solution and absorption of the detached fragments of a tumour in the manner just described reminds us of the changes observed to take place in a cataract after the capsule of the lens has been opened; and they are interesting phenomena in relation to the much disputed question of the possibility of corresponding processes taking place in a sequestrum after necrosis of a bone. There can be no doubt that they are the result of some forces existing in the detached fragments, and not of any absorbing or corroding influence exerted upon them by the surrounding tissues;

neither are they simply of a chemical nature, like the decomposition which takes place in the dead body; nor are they the consequence of a peculiar quality of the fluid infiltrated into the substance of the tumour, for there is no evidence that the fluid is endued with any qualities likely to lead to a result of that kind, and there is every reason, from analogy, to reject such a supposition. It seems most probable that these changes are of a nature nearly allied to those by which the effete, worn out particles of the living frame, are reduced into a fluid state, and returned into the circulating current. Although the detached fragments have no longer any physical connection with the surrounding tissues, they are probably not altogether disconnected from their vital influence. Such a vital influence operating from one tissue upon another, with greater or less degree of force, is universal in the animal machine. Emanating from the vessels it operates upon the blood circulating through them, preventing its coagulation, and facilitating the elaboration of its components; it prevents the decomposition, and assists in the solution and absorption of the blood extravasated among the tissues; in like manner it prevents the decomposition of the contents of abscesses and cysts, which sometimes remain stationary for years, as well as of fibrinous masses, floating about in the fluid of ascites. It is shown in a still more remarkable manner in those cases where a fœtus retained in the body for years has become dry and encrusted with a shell of calcareous matter. In all such cases a total loss of vitality is prevented, and the operation of the ordinary laws of nature is restrained by the contiguity of the living tissues. It is more than probable that the same influence regulates the changes that occur in the detached portions of a tumour, and it is not improbable that it has also some effect upon a sequestrum of bone, leading to its partial or even complete removal. It is difficult to prove in the latter case that this really takes place, but I think there are sufficient reasons for admitting it; the appearance, size, and shape of the sequestra, the roughening of their outer, and the removal of the cancelli from their inner surfaces, are sometimes such as most easily admit of explanation on this supposition. The influence upon which these effects depend is of course most likely to exert its power while the external air is excluded: indeed it can scarcely be expected that any change should take place in a detached portion of bone after the abscess connected with it has burst.

Suppuration has been now and then known to take place in a fibrous tumour, and ulceration sometimes extends into it after penetrating its coverings, as in the case of polypus. Here is a specimen of large fibrous tumour of the uterus, projecting into the peritoneal cavity, and covered with a coating of cancer, which was diffused over nearly the whole interior of the abdomen. At one part you may see that the cancerous disease has penetrated the tumour, and destroyed its substance for about an inch. Dr. Lever, in his work on diseases of the uterus, relates a case where melanosis was deposited in the structure of a fibrous tumour.

We cannot say that these tumours are attended with any particular train of symptoms, they have hardly any nervous link connecting them with the rest of the body. The drain upon the vascular system, occasioned by them is scarcely appreciable, neither do they return to it any noxious element, or communicate an evil influence in any other way. The symptoms to which they do give rise are almost entirely dependent on their effects upon the neighbouring organs and tissues, and therefore vary with their position. Thus, if they be placed near the lining membrane of the uterus they occasion the several symptoms of chronic inflammation of that membrane, such as uneasiness, discharges of mucus or blood, with, perhaps, the pains of forced uterine contractions, sensations of weight, bearing down, &c. When situated more in the middle of the uterine wall, or nearer to its external surface, they may exist for a long time, and attain considerable size, without giving any indication of their presence. In some cases, by their pressure upon the rectum or bladder, they occasion an irritable disordered state of these organs, or difficulty in voiding the urine and fæces. These and other symptoms of the like kind are rather casual results of the tumour's relation to certain external parts, than of any intrinsic quality of its own.

The fibrous tumours of the uterus become the subject of treatment only when they grow from the os uteri, or when they project into the cavity of the uterus and the vagina, assuming the polypose form. In either case they may be removed by ligature, or if their pedicles be narrow, may be excised, as recommended and extensively practised by Dupuytren. In a few cases an incision has been carried through the coverings of a fibrous tumour, projecting into the cavity of the uterus or vagina, but not become polypose, and attempts have been made to turn the mass out of its bed by dissection, and by tearing the fine filaments which unite it to its capsule. This proceeding, though successful in a few instances, is, for obvious reasons seldom to be attempted. The application of iodine externally, and its internal administration, has been recommended with the view of promoting the absorption of these tumours, and is said to have been attended with success. I have seen it tried in a few instances, but the result has not been encouraging.

Fibrous tumours affecting the bones are usually found upon those of a spongy nature, upon the ends of the long bones, the phalanges, pelvis, and lower jaw. So far as I have seen, they are confined to the *exterior* of the bones, growing from the periosteum, and creeping along the surface of the bone in such a manner as to prove almost to a certainty that they originate in some morbid condition of the periosteal fibres. In the museum of the College of Surgeons there is a specimen of a tumour said to be of fibrous nature, and supposed to have commenced in the *interior* of the femur; but the characters of the tumour approximate more to those of a cancerous than a fibrous growth, and it is not now easy to tell at what part of the bone it originated. The bones underneath these tumours may suffer absorption, in consequence of the pressure produced, but do not seem to be affected in any other way. They appear upon the maxillary bones more frequently than upon any other part of the skeleton. On the lower jaw they spread along the ramus, encircling it beneath and on the sides; so that the bone is almost concealed by the tumour. In some instances they form within the substance of the jaw, probably from the periosteum lining the sockets of the teeth, and as they increase the walls of the bone become spread out over them. They grow up around the teeth, and, where they project into the mouth, may be soft and fungous. In the upper jaw they form now and then in the antrum, and gradually distend the walls of the cavity; more frequently they commence on the outside, and grow along the surface of the bone, projecting into the mouth, nose, orbit, and towards the cheek, so that the natural outline of the maxilla can scarcely be recognised. In some instances these fibrous tumours of the jaws have exhibited a semi-cartilaginous structure; and now and then fibres, or plates of bone, are formed in various parts of them. The progress of the disease is well illustrated by the series of tumours of the jaws in the College of Surgeons, from the museum of the late Mr. Liston. These preparations furnish ample proof, if proof were needed, of the skill of that illustrious operator; they show also how necessary it is to bear in mind the mode of growth of these periosteal fibrous tumours of the jaw; because from their disposition to creep along the surface of the bones, they are liable to return after removal, unless the immediately adjacent as well as the affected part be excised. The histories attached to the specimens teach us that very large fibrous tumours, both of the upper and lower jaw, together with the bones on which they grow, may be removed successfully.

Nearly allied to these tumours of the periosteum, and forming a close connecting link in pathology between them and the common warts and polypi, are the tumours of the gum called "epulis." They are of two kinds: one consisting of a red granulated or nodulated growth springing from the sockets of the teeth, originating apparently in a morbid condition of the membrane lining the sockets, and caused in many instances by a diseased state of the teeth. Such a growth requires to be extirpated, and it is not enough simply to slice off the tumour, for it is deeply rooted and will most likely reappear unless the alveolus, from which it springs, be removed with it, which may easily be done by cutting a notch in the jaw with the bone forceps or a small saw. The second kind of epulis is exemplified by this specimen of tumour of the gum on the outside of the upper jaw; it is a red, soft, pulpy growth, as large as a walnut, in appearance resembling swollen gum; indeed it consists evidently of a growth of the gum. It is slightly lobulated on the surface, and tolerably defined at the circumference, where it is continuous with the surrounding gum. The patient was a healthy young woman, and the disease had been observed to follow the extraction of a tooth six months before she came to the hospital. The tumour was closely connected with the bone, so I removed the portion of the maxilla on which it rested, including the sockets of the canine and first molar teeth. Seven years have now elapsed since the operation was performed, and the patient is still quite well. The tumour was very vascular, bled frequently, and might have been mistaken for a malignant affection. Its cut surface shows an indistinctly fibrous structure; the bone beneath is rough and somewhat absorbed in consequence of pressure, but is in other respects healthy.

Fibrous tumours are not uncommonly found in nerves. In some cases they form distinct round masses within the neurilemma. In others they appear to consist of an increase of that fibro-cellular tissue which unites the nervous filaments together; for the filaments are intermixed with the substance of the tumour, which in its general character, and probably also in its essential nature, closely resemble the knots which are so common at the divided ends or wounded points of nerves. These tumours are in some cases attended with a good deal of pain, felt in the course of the nerves and easily excited by pressure, a slight blow, or a quick movement. Excision is the only remedy, and it must in each case be uncertain how far it will be possible to effect that without injuring the structure of the nerve. Not long ago I removed from within the sheath of the median nerve near the wrist, from a woman aged forty-eight, this spherical tumour; it is as large as an orange, presents a semi-opaque glistening appearance, not unlike brawn, with more opaque yellowish spots interspersed here and there. It resembled some of the varieties of encephaloid disease so closely that I should have been apprehensive as to the result had it not been gradually forming many years, during which time the woman enjoyed good health. It was attended with a good deal of pain and a shrivelled state of the fore and middle fingers. Some filaments of the nerve were removed with the tumour, nevertheless, the patient recovered completely, regaining the use of the hand; the fingers were also in course of time restored to their natural condition.

It has already been intimated that fibrous tumours occur in several other parts of the body besides the uterus, the periosteum, and the nerves. Here is one as large as a walnut and of spherical shape, growing from the inside of the dura mater, and causing an indentation in the surface of the brain. Sometimes they form in the substance of the testicle, the prostate gland, the ovary, and even the walls of the alimentary canal. Very rarely are they to be met with in any other of the internal organs.

One point more requires to be specially mentioned in relation to these growths; viz., their occasional liability to return after they have been to all appearance completely extirpated. Where this has taken place the tumour has, I believe, generally grown quickly in the first instance, has been composed of several detached portions, of which one or more may have been left behind in the first operation, or has consisted in a thickened morbid condition of the tissue in which the growth occurs, affecting a considerable area and probably not having such definite limits as these growths usually present. To the latter circumstance I have already directed your attention in speaking of fibrous tumours of the periosteum, and have said that the same feature is to be observed in some of the adipose tumours, more particularly those under the skin. Whether these qualities are to be regarded as constituting an approximation to growths which we call malignant, must remain a question till we are all able to define more clearly the real nature and characters of that class of diseases.—*Prov. Med. and Surg. Journal, Nov.* 27, 1850, *p.* 645.

---

## 122.—FIBROUS TUMOUR OF THE UTERUS IN CONJUNCTION WITH PREGNANCY.

By Dr. Robinson.

A woman, æt. 40, pregnant with her third child, was confined at four o'clock in the afternoon. The labour was in every respect natural, and the womb contracted well. Two hours afterwards she was seized with cold chills; and, upon being put to bed, was sick and faint. When seen five hours and a half afterwards, she was in a state of complete collapse. Fearing internal hemorrhage, and not being certain about the state of the uterus, the hand was introduced. The uterus was found empty, but flaccid. By cold, pressure, maintaining the hand in the uterus, brandy, and laudanum, contraction of a feeble kind was produced, and also a somewhat improved condition of the system generally. She rallied a little, but never fairly got out of collapse; she lived ten days, and died apparently from atonic peritonitis.

Upon dissection, the intestinal convolutions were of a dark colour, being smeared with blood, and were united to each other and to the uterus by recent and easily separated adhesions. There were three pints of dark venous blood without coagula in the peritoneum, and the tumour, in size and shape like a placenta, attached to the fundus of the uterus: this was covered with peritoneum and reflection from the uterus, and at the angle of reflection it was lacerated to the extent of two inches.

In his observations the author alluded to the uniqueness of the case—to the structure, situation, and growth of the tumour. It seemed as if a malignant character had been implanted upon that originally fibrous. As regards situation, he thought, had the woman not been pregnant, it was the most favourable, and would have produced little inconvenience. He thought also that the tumour, originally of small size, grew with the uterine development. He ascribed the laceration to the tumour being entangled in the convolutions of the intestine, not following the uterine contractions so freely as was necessary; the peritoneum being thus put upon the stretch, and, by the recurrence of pain, giving way.

He drew a contrast between this and another case of laceration of the peritoneum which occurred to him, which has been published, and in which death occurred in twelve hours; and thought the difference in the treatment adopted might have accounted for the difference of time at which death occurred; and, in conclusion, alluded to the fear of rupture of the peritoneum as an additional reason for resorting to the induction of premature labour.

[Should premature labour be induced in all cases of tumours of the uterus?]

Dr. Reid had attended a case where there was fibrous tumour of the uterus, and the lady had been pregnant two or three times; and, although she had suffered considerably during each pregnancy, yet no bad symptom occurred either before or after labour. She had been delivered of twins, and no peritonitis followed. He (Dr. Reid) would not interfere too much in such cases to induce premature labour.

Dr. Oldham said he had examined the preparation of the tumour in Dr. Robinson's case, and would make a difference of opinion respecting it. It appeared to him a fibrous tumour enlarged by gestation, and the blood vessels surrounding it seemed to form a kind of cortex, or shell, they being enlarged by pregnancy; and, as to the cause of rupture, confessed he did not quite concur with him that it was caused by the hanging of the tumour amongst the intestines, there not being sufficient adhesions to account for the resistance; but supposed that, when the uterus suddenly contracted after the removal of the placenta, a great amount of traction would take place just at the angle of reflexion. That this kind of laceration sometimes takes place independent of tumour, from the peritoneum undergoing change, and lacerating the tumour, would favour the tendency to rupture. He then mentioned some cases of fibrous tumours which came under his own observation, one of which occurred in the midwifery department of the hospital, so apparent that the students examined it without any inconvenience to the patient: the pedicle in this case was more slender and moveable than in Dr. Robinson's case; but in none of his cases had he thought of inducing premature labour. Had the tumour been in the cavity of the uterus, progressively increasing, threatening hemorrhage of the uterine veins, some other line of practice might be indicated; but in his cases they were not likely to interfere. One of the pupils had attended the last-mentioned case: the woman was delivered of twins,, and no evil result followed.

Dr. Lee had met with an instance in which a tumour enlarged to such a degree as to lie in the way of the child's head, and acted similar to deformity of the pelvis. He had performed craniotomy in such cases, and would treat a case of tumour low down in the pelvis like a case of deformed pelvis. These tumours occupy different situations, in some instances strictly resembling polypi, and, when obstructing the orifice of Fallopian tube, causing sterility. When situated midway, but not interfering with this tube, abortion will result; but when the tumour is situated under the peritoneum, it rises upwards, and pregnancy may take place. Unless where it grows rapidly, he considers the induction of premature labour would be unjustifiable: has seen cases in which the walls of the uterus became softened, and death arose from a low form of puerperal fever: had seen no case of rupture in such cases. He said of late a considerable degree of interest, although not of much practical importance, had arisen as to the diagnosis of this sort of tumour and ovarian cystic tumours. A case had occurred in which, some twenty-five years since, Mr. Lizars, of Edinburgh, was about operating, but, on cutting down, found the tumour adherent to the abdominal walls. This patient recently died, and blood-vessels of large size were found passing from the tumour to the omentum, showing the impossibility of operating. Dr. Simpson, of Edinburgh, had pronounced the tumour ovarian before seeing the ovaries, which were in a perfectly healthy state. A diagram, showing the vessels passing from the tumour to the omentum, was brought before the Society.—*Med. Gazette, Jan.* 24, 1851, *p.* 156.

---

## 123.—ON THE TREATMENT OF REMITTENT MENSTRUATION BY SULPHATE OF QUINA.

### By Dr. Edward John Tilt.

[Dr. Tilt says he uses the term remittent here in the same sense as in the pathology of fever. This variety of menstrual derangement being characterised by a change from the habitual type to some other, so that the menstrual periods are brought nearer, and tend to run into each other. The first case occurred in a tall, slender woman, aged twenty-nine. In this case menstruation commenced between fourteen and fifteen, and continued regular until six months since, when she left her native county, Lincolnshire, for town. For two months, although she menstruated as usual, she was troubled with leucorrhœa between each menstruation. The menstrual periods then came on every fortnight and lasted eight instead of five days. Although she had tried several practitioners, the disorder remained the same, and, continues Dr. Tilt,]

On the 25th of October she applied to me at the Paddington Free Dispensary. The patient was weak and exhausted, but not chlorotic; she had just passed a menstrual period; there was an absence of pain and of other symptoms of uterine disease; therefore, notwithstanding a discharge of which she complained, I omitted all *local* treatment, and ordered the following pills and mixture :—sulphate of iron, two scruples; sulphate of quina, ten grains; extract of hyoscyamus, a scruple: mix for twenty pills, one to be taken night and morning. Camphor mixture, six ounces; liquor potassæ, four drachms; tincture of hyoscyamus, six drachms; tincture of cardamoms, two drachms. Half an ounce to be taken thrice daily. An opium plaster to be applied to the pit of the stomach.

The patient's general health improved, menstruation returned to its wonted type, and from that time she only took one pill every night, until the approach of the ensuing epoch, which passed on as it ought to do; and the patient was discharged on the 26th of December.

Miss M. A. L——, aged sixteen, with dark hair, grey eyes, slender, and of middling height; has lived in town all her life. She first menstruated between fourteen and fifteen; and regularly, for four months after its first appearance, did menstruation adopt the monthly type. Since seven or eight years of age she had been subject to leucorrhœa, which for the last three months has preceded and followed the menstrual flow; the latter has made its appearance every fortnight. Still there was no intermediate leucorrhœa; there were no pains in the back, none in front, and none were determined by pressure on the abdomen; but the thighs were so painful that she could scarcely walk, and her legs were at times much swollen. For this symptom my opinion was requested by her mother. The girl had very much fallen off, was much debilitated by loss of blood, and the undue influence of the generative organ on her system had caused catamenial headache, heaviness for sleep, momentary loss of her senses, and often fits of lowness and shedding of tears.

I thought I could safely promise a speedy return to health, and I ordered the following pills:—Sulphate of quina, ten grains; extract of gentian, a scruple; extract of aloes, ten grains; extract of hyoscyamus, a scruple. Mix for ten pills, one to be taken night and morning. I prescribed the compound camphorated mixture, and belladonna plasters to each of the ovarian regions.

The symptoms rapidly abated, and menstruation was forthwith brought back to its original type.

The preceding cases are, in my opinion, samples of an idiopathic aberration from the normal type of menstruation, and perfectly independent of any *inflammatory* lesion of the ovaries or uterus. They are illustrations of similar cases which have come under my care—cases in which various preparations of steel had been fruitlessly tried, and which soon yielded to the use of sulphate of quina alone, or in combination with other remedies; and I therefore strongly recommend this practice to the profession, premising that the treatment will not be so rapidly effectual, and may even be attended by mischief, if the remittence of the menstrual flow depends, as it sometimes does, on ovarian or uterine subacute inflammation, as in the following case:—

Eliza H., aged twenty one, of florid complexion, full habit, and of middling stature, applied to me at the Paddington Free Dispensary for relief. For the last two years she had been living in London, menstruation first appeared between thirteen and fourteen, became regular from the first, was very abundant, and lasted five days at each period.

A few months ago the patient was attacked by a severe cold with fever, which stopped menstruation for two months. When the latter returned it was scanty, and accompanied by more than usual pain in the back, the stomach, and head; and, attended by these symptoms, it made its appearance every three weeks instead of every month, giving rise also to sensations of weakness, trembling, and lowness of spirits, with which she had previously been wholly unacquainted.

The patient localized her pains in the ovarian regions; pressure increased them, so did walking or any unusual exertion; she was slightly feverish; the tongue was furred, and the bowels were costive.

I considered this case as one wherein the remittance of menstruation was dependent on subacute inflammation of the ovaries, and I ordered six leeches over each ovarian region; poultices to be kept to the same regions at night; and a flannel sprinkled with camphorated liniment to be applied over the abdomen during the day. Aloetic purgatives and a sedative mixture were also prescribed. The pain subsided; the patient felt well; but menstruation returned at the morbid period of three weeks and was still painful, and left behind it a certain amount of abdominal pain. After giving a brisk purgative, I applied belladonna plasters to the ovarian regions, and gave pills similar to those taken by Miss M. A. L. The patient now says, she feels well, and as menstruation has resumed its physiological type, I believe her to be cured.—*Lancet, Feb.* 8, 1851, *p.* 148.

## 124.—INTRA-UTERINE POLYPUS, OF A LARGE SIZE, SUCCESSFULLY OPERATED UPON.

By Dr. W. F. Montgomery, A.M.

[On the 27th of March, Dr. Montgomery was urgently requested to see a lady at Black-rock. He found her to be about forty years of age, unmarried, and in violent agony, her sufferings recurring periodically, and resembling labour pain.]

On examination, which she consented to, with great reluctance, I found the pains were produced by regular and strong contractile efforts of the uterus, the mouth of which was open to the size of a shilling, with very firm margins, and becoming very tense during each pain. Immediately within it I could distinctly feel a round tumour, which was pressed strongly into the circle of the os by every pain; in fact there was within the cavity of the uterus a polypus of considerable size, which the organ was endeavouring to expel, by efforts like those of ordinary labour. There was a tumour in the abdomen inclining towards the right side, and reaching nearly as high as the umbilicus.

She was suffering so severely, and was so exhausted by the pain, that I thought it necessary to give her a cordial and an opiate, from which she derived immediate relief; the uterine efforts ceased, the polypus receded, and the os uteri gradually closed after a few days.

She was then given tonics, under which her health improved surprisingly, and no further change of importance occurred until

May 27th, when, after taking a walk, severe pain again came on, with hemorrhage, and lasted three days; in consequence of which I saw her again on

May 30th, when I found the os uteri, which had been very rigid and unyielding two months before, much more open, thinner, and so relaxed as to allow me to pass my finger freely in to the uterus and round the tumour, which appeared to me to have a broad and very firm attachment.

June 15th, she is looking wonderfully better, but had a sharp attack of pain and hemorrhage on the 10th, which lasted several hours.

[It was evidently highly desirable that the tumour should be removed, if practicable, immediately. But the only means to effect this seemed so hazardous that it was deemed most advisable to defer any operation for the present. On the 15th of July she had a severe attack of pain of an expulsive kind, with great flooding; and on the 24th, the large end of the polypus had fairly cleared the os uteri.]

I next saw her on August 2nd, and on the 9th I passed a ligature round the neck of the polypus, fully three inches within the os uteri by means of Niessen's double canula, and more than six inches of ligature were taken up in encircling the attachment of the tumour. On the

11th symptoms of putrefaction were perceptible, and continued to increase. On the

14th the ligature appeared to be drawn home, and on twisting the canula it broke, but the polypus would not come away, though the amount of attachment remaining undivided could not have been more than a quarter of an inch in thickness.

The discharge now became horribly offensive, the pulse very quick, and the stomach irritable, so that I began to be very anxious about the result, and to fear that it would be unfortunate; yet the patient never lost courage, but maintained the most complete composure and unshaken fortitude throughout; took food freely, and slept well, never for one moment doubting, as she afterwards assured me, that she would ultimately recover, as I had promised her. And thus passed over the 15th, 16th, and 17th; each day I tried to draw the polypus down, but it seemed to be firmly grasped by the uterus, and was quite immoveable, so that no force of traction that I could safely exert was sufficient to bring it away until the 18th, that is, the ninth day from the application of the ligature, when, greatly to my satisfaction, I succeeded in extracting it; from which moment the lady never had an unpleasant symptom.

The tumour, when it came away, was greatly decomposed, softened, and consequently reduced in size, portions of it having also been torn and cut away in the attempts to get it down; but still it was of considerable bulk, measuring about five inches in length and three in breadth.

As soon as the polypus was removed I found that the tumour in the abdomen became suddenly greatly reduced in size, and in a few days was no longer to be felt.

The lady's recovery was rapid and uninterrupted; she was in the drawing-room in four days, and left town on the 28th, ten days after the extraction of the polypus: and since her return to the country, I have been informed by her brother that she is in the enjoyment of perfect health.—*Dublin Quarterly Journal of Med. Science, Feb.* 1851, *p.* 52.

## 125.—AN ANALYSIS OF 108 CASES OF OVARIOTOMY WHICH HAVE OCCURRED IN GREAT BRITAIN.

By Dr. Robert Lee, F.R.S., F.R.C.P.

The author commences with the history of a case of ovarian dropsy, successfully removed by a surgical operation, and reported in the 'Edinburgh Medical and Surgical Journal' for 1822, by Dr. Nathan Smith, Professor of physic and surgery in Yale College, Connecticut. He then gives an account of an operation performed by Mr. John Lizars of Edinburgh, in 1823, when *no* ovarian disease was found after the abdomen had been opened; of three other operations, by the same surgeon, when the diagnosis was more accurate, in 1825 and 1826; and of two operations, by Dr. Granville, in 1826 and 1827. He then refers to an operation performed, in 1833, by Mr. Jeaffreson; and to three operations, by Mr. King, in 1834 and 1836. During the last twenty-seven years the operation has been attempted or performed more than 130 times in Great Britain. Of 108 cases, of which authentic reports have been received, in thirty-seven cases either no ovarian cyst or tumour to remove existed, or there were present ovarian cysts and tumours, the removal of which was found to be impracticable, and the operation was abandoned. Of these thirty-seven cases, fourteen were fatal. The analysis given of 108 cases of ovariotomy shows that in thirty-seven, or about one-third of the whole number, it was impossible to determine *previously* whether ovarian disease actually existed, or, when it did exist, whether its removal was practicable. Of the seventy-one cases, in which ovarian cysts and tumours were removed, twenty-four proved fatal, in fourteen of which the operation could not be completed. In the tabular analysis of the 108 cases appended to the paper, it appears that forty-five cases are reported by Dr. Clay, and eleven by Mr. Lane; and to both of these gentlemen the author expresses his thanks for the manner in which they have communicated to him the entire results of their experience of the operation.

[On the discussion of this subject at the Royal Medical and Chirurgical Society, MR. CÆSAR HAWKINS remarked upon this operation.]

I must confess, that for the last three or four years, I have not altogether felt the same confidence in the propriety of the operation, and have seen the great necessity of the fullest information regarding it. It is well known that the operation has been very frequently attempted, and it is generally believed that a considerable proportion of the operations have been fatal, or have been impossible of completion, of which the public have no information. Nor could I overlook the fact, that the operation has now been attempted by ten surgeons attached to hospitals in London; that not one of these gentlemen has performed it twice; and that of these ten cases, the only one in which the patient was fortunate enough to recover from the operation was that in which I myself operated.

[On the same occasion MR. LAWRENCE rose and said,]

From the interesting document presented to the Society by Dr. Lee, for which he deserves the best thanks of the profession, the public, and more especially of females labouring under abdominal enlargements, it appears that in thirty-seven out of 108 authenticated cases of operation collected by him, it was found, when the abdomen had been exposed, either that there was no diseased ovarium, or one so circumstanced as not to admit of removal. We cannot help believing that this announcement, however unexpected and startling, represents ovariotomy in too favourable a light. Dr. Lee's list is imperfect, confessedly so; it contains only the cases of which he has received authentic accounts. There is no reason for supposing that any successful operations have been omitted. We have generally, perhaps invariably, heard of them, as soon as the cicatrization of the wound had been completed. The same alacrity has not been observed in the communication of unsuccessful cases; and I am not aware that any one of the thirty-seven cases just alluded to has been published by the operator. We can hardly doubt, therefore, that if a correct list were drawn out of all the operations, the proportion of cases in which ovariotomy had been fatal would be increased, and that a considerable addition would be made to the thirty-seven instances, in which the perilous proceeding of exposing the cavity of the abdomen had been resorted to unnecessarily. Dr. Lee's list, however, as it now stands, is quite sufficient to make us doubt the propriety of admitting ovariotomy into the catalogue of recognised and approved surgical operations. We are still in the dark on one point, which ought to be ascertained before we can determine the true value of the proceeding; that is, its influence in prolonging life. Our excellent colleague may probably have acquired information on this point, in prosecuting the researches, of which he has now laid the result before the society, and he could probably render them still more complete by learning the subsequent history of the cases, in which the operation had been successful, by ascertaining the kind of health enjoyed, and the duration of life after recovery. The chances offered by the operation would be expressed by the average duration of life in those who have undergone it, if that can be ascertained, reduced in amount by a deduction, and that not inconsiderable, on account of those in whom the operation ends fatally, whether completed by removal of the ovary or not. The result thus obtained must be compared with the probable duration of life in those patients who receive such relief as can be afforded by the other resources of art. Many years ago I saw a female from the North of England who had undergone ovariotomy, as it was reported, successfully, not very long before the time of my seeing her, the operator being Mr. Lizars. It was performed when what was then called the major incision was in vogue—that is, a cut through the parietes from the ensiform cartilage to the pubes, such as we make to expose the abdomen for examination after death. There was a sound cicatrix on the person of this female, indicating that an incision of that description had been made. The pelvic region was occupied by a large solid mass of disease. The comparison I have now suggested must be made between two sets of cases similar in their nature. Ovariotomy is not performed indiscriminately, but in selected instances. The cases chosen for operation are exactly those in which it is the least necessary, the danger to life being remote, and the patients sometimes living for years with only an occasional interruption of health and comfort. Mr. Hawkins has pointed out the important distinction between the simple serous cysts developed in the broad ligament, with their contents of watery consistence, and the more serious disease of the ovary itself, with its multiplied cysts, and their thick, variously coloured secretions. Two instances of the former kind were under my observation for many years, and I believe that both individuals are still living, although it is long since I have seen them. Elizabeth L ——, a rather tall and well-made woman, who had always enjoyed good health, found a swelling in the lower part of the abdomen soon after the birth of her last child, in 1819. It gradually increased for about three years, hardly troubling her except by its bulk, which however had become so considerable in 1823, that relief was absolutely necessary, and I drew off in St. Bartholomew's Hospital a pailful and a half of fluid, of watery consistence and slight whitish opacity. She soon recovered her health and strength, feeling as capable of exertion as at any period of her life, and for nearly two years she thought herself perfectly recovered. She increased in size at the end of this time, and was tapped again with the same complete relief as before.

From this time to 1829 she was tapped three times, and did not swell again after the last date. I saw her in October 1831, in perfect health, and without any abdominal enlargement. She had sometimes experienced an uneasy sense of fulness, which was relieved by purgatives. In the preceding winter she had suffered three or four attacks of spasmodic breathing. Since their cessation she had been quite well, and equal to all the exertions which her sitation in life required. She had drunk nothing but water. I saw her again in June, 1842. She had lived for the preceding two years at Charlton, in Kent, enjoying excellent health, and free from every trace of her former disease. I tapped a lady for ovarian dropsy, and let out a few pints of clear fluid. She regained her former size, and considered herself quite free from the disease. In four or five years she increased in bulk, and the operation was repeated, a smaller quantity of similar fluid being drawn off. I saw her again in 1842, sixteen or seventeen years after the first operation. She had enjoyed uninterrupted health since the last tapping, and nothing abnormal could be detected in the abdomen on the most careful examination. A statement more remarkable even than those in Dr. Lee's communication has come out in the course of this evening's discussion, having been accidentally elicited, rather than mentioned intentionally. A gentleman, who spoke from the middle of the room, has informed us that he had performed ovariotomy twelve times, and had intended to communicate the particulars to Dr. Lee. This list of operations, however, is of little importance, in comparison with the other matter, mentioned subsequently—viz., that in between forty and fifty cases, as I understood him, he had made an opening into the abdomen, in order to ascertain, in cases of supposed ovarian disease, whether the state of things was fit for operation; and having found that it was not, he closed the opening again. He added that not one of these persons had suffered from the proceeding. If we had not heard this report from the operator himself, we might have been excused for feeling some hesitation in giving it credit. To determine whether a diseased ovary, or other abdominal tumour, admits of excision, it must be necessary to examine the situation and connexions of the part with the hand, which would require a somewhat large cut through the abdominal parietes. To find that this could be done with impunity in between forty or fifty instances is what we should have little expected. As similar good luck could hardly be expected to attend other patients, I would caution the younger part of the company against imitating the boldness of this operator. The naked statement heard to-night does not enable us to appreciate the affair satisfactorily: we must wait for that promised publication of full details which is necessary to substantiate so novel a report. In the meantime, the simple statement, coupled with the thirty-seven cases of Dr. Lee, affords evidence of difficulties in diagnosis that must be perplexing to the ovariotomist. A gentleman on the left has brought before us another proposal: that of making an incision in the abdominal parietes, and then cutting into the ovarian cyst, for the purpose of establishing a communication with the exterior, to serve as an excretory duct, or, as I think he called it, an oviduct. He is probably unaware that diseased ovaries have been dealt with long ago in various ways more or less similar to this. The result has been, I believe, invariably fatal. Ovariotomy, with all its dangers, has the merit of completely removing the disease. This plan, more dangerous than ovariotomy, would leave the disease behind, lighting up inflammation in the great mass covered by peritonæum, and in immediate contact with the abdominal viscera. Many years ago, I saw attempts of this kind in more than one or two instances: they were all fatal. The discussion of this evening, excited by the important communication of Dr. Lee, will at least serve the useful purpose of admonishing us to pause in the attempts at treating diseased ovaries by surgical operation; and, after seriously considering the matters brought to light by that communication, the forty or fifty cases from another quarter, and the proposed oviduct scheme, to ask ourselves the question whether such proceedings can be encouraged, and continued without danger to the character of the profession.—*Lancet, Nov.* 23, 1850, *p.* 584.

126.—*On the Treatment of Ovarian Dropsy by the Production of an Artificial Oviduct.*—[This mode of treating ovarian dropsy introduced by MR. BROWN is a modification of that of Mr. Bainbridge, to whom he would accord the merits of having first seized upon the guiding principle –that of setting up adhesions between the sac and the abdominal parietes, and leaving the sac to exhaust and destroy itself, by its discharge through an artificial opening.]

The operation consists in making an oblique lateral incision in the middle third of the oblique line, extending from the umbilicus to the anterior superior iliac spine, reaching at first to the peritonæum, then puncturing and emptying the cyst by a trocar and canula, and the peritonæum being reflected, to subsequently stitch the cyst to the aponeurotic tendon of the external oblique muscle; and this being done, to divide the cyst between the line of the sutures; and, finally, in keeping up the communication between the interior of the cyst and the exterior, allowing the free and constant escape of all secretions produced within it. This operation of Mr. Brown differs from that practised by Mr. Bainbridge, in that the fistulous opening is formed in the side, and not in the middle line, whereby the discharge from the wound is facilitated, and the greatest comfort to the patient ensured. In illustration of the practicability and advantages of the operation, Mr. Brown proceeded to narrate the history of three cases in which he had carried it into practice.

Mr. Brown drew the following conclusions—1. That some cases are curable by pressure—namely, those in which the cyst is unilocular, without adhesions, its contents clear and not albuminous, and where the condition of the patient affords time for the requisite perseverance, no counter-indications existing. 2. That some multilocular cases, and such as present adhesions of the cyst, are to be materially relieved and retarded by pressure. 3. That in cases where pressure has failed, or is contra-indicated—whether the disease be unilocular or multilocular—but without adhesions, extirpation affords a means of cure; but in all such cases, before this severe operation is resorted to, time and the condition of the patient not opposing, pressure should be first tried. 4. That where the extent and character of the adhesions forbid extirpation, and where pressure is contra-indicated, or has been practised and failed—in such cases the lateral operation above described presents a means of cure having the greatest promise of success. 5. That this lateral operation may be performed with facility, and is attended with little danger; no case of peritonitis having occurred to the author in the many instances in which he has had occasion to cut down upon and divide the peritoneum in the operation in question, and also in others.

In the discussion which followed the reading of this paper, the general feeling of the members was against the proposition, MR. HIRD expressed his belief that patients suffering from ovarian dropsy had, generally speaking, a better chance of prolonged life by constitutional treatment, quiet, and the avoidance of local interference, than by resorting to any operative procedure.—*Med. Gazette, Nov.* 29, 1850, *p.* 939.

## 127.—ON OVARIAN TUMOURS.

### By Dr. Edward John Tilt.

[Dr. Tilt first seeks to distinguish ovarian tumours from each other, and from the tumours of other organs. The chronic kind, contrary to the acute, are remarkable for their insidious beginnings, and the length of time generally required for their growth. These kinds also are generally unattended by fever, whilst acute ovaritis is frequently attended by a degree of fever proportionate to the amount of suppuration occurring in its tissue or in its vicinity. Chronic ovarian cysts may be classed as follows: 1. Piliferous; 2. Hydatid; 3. Fibro-serous; 4. Heteramorphous tumours; and 5. Cancerous encysted tumours.]

One of the first, certainly the most important organ with which ovarian growths interfere. is the womb, and we shall have to examine the action of these tumours—

I. On the unimpregnated womb.
II. On the impregnated womb.

1. Action of ovarian tumours on the impregnated womb.

The ovarian tumour at first retains the usual position occupied by the ovary, but when it has attained the size of a hen's egg, if free from inflammatory adhesions, it has a tendency to glide down into the recto-vaginal pouch. As the tumour increases in that recess it pushes before it the posterior wall of the vagina, often obstructing this passage so as to render difficult the introduction of the finger, and still more so the intromission of the male organ. When thus situated the tumour presses on the neck of the bladder by its anterior surface, and on the rectum by its inferior, while it often draws down the fundus uteri with it, so as to produce more or less complete retroversion, which has been noticed by Siebold, Boivin, Seymour, and Burns. It may even raise it above the pubes, and by its continued pressure cause it to become atrophied. Sometimes, however, the tumour insinuates itself into the vesico-vaginal pouch, and in time gives rise to anteversion of the womb. It will be easily understood what peculiarities of its mode of attachment may cause the lateral flexions of the womb which have been sometimes noticed.

But the tumour may be so placed as to press upon the fundus uteri, forcing it down as it grows, and thus determining prolapsus or even procidentia. This is of rare occurrence, but such cases have been noticed by Meissner, Dugast; and in Dr. Mogerkouski's successful case of ovariotomy it is said that the uterus was forced out of the vagina by the cyst. The patient had two children after the operation.

It is impossible for these displacements to occur without considerably modifying the position and dimensions of the vagina; and we find that it is lengthened, and often drawn to one side, when there is but one tumour, as it has been observed by Montaulieu *fils*, Laporte 'Tom ii. Mémoire de l'Acad. de Chirur.', Voisin (loc. cit.), and myself.

In a case cited by Duges, the tumour so pressed upon the vagina as to determine the inflammatory adhesion of its internal surface, and consequent obliteration (?) Of course, this latter accident, and even the uterine displacements we have enumerated, interfere sufficiently with the functions of generation so as in many cases to produce sterility.

When, however, the tumour has so increased as to be ill at ease in the restricted proportions of the pelvis, it imitates the womb, which after the first few months of pregnancy rises above the brim of the pelvis, draws up the womb and therefore the vagina, to which it gives a slanting direction, which is recognisable by the oblique and elevated position of the os tincæ. In such cases the vagina often takes upon itself an infundibuliform appearance. Burns thinks that the vagina is more particularly drawn up and lengthened when both ovaries are affected. Thus it has occurred that the uterus is drawn completely out of the pelvis by an ovarian tumour, the neck of the womb forming a narrow canal of from four to six inches long. In the case observed by Cleghorn the womb was drawn up to the navel.

Dupuytren has several times met with the womb drawn up, so as to run the risk of being pierced by the trocar during the operation for paracentesis performed to remove the contents of an ovarian cyst; an accident, Voisin relates, as having really occurred to a surgeon of his acquaintance.

One of the most singular cases of lengthening of the womb is quoted by Morgagni (Epis. 45, 12) from Vater, who relates the fact of the neck of the womb being stretched in contrary directions by an enormous swelling of the ovary, and by *prolapsus vaginæ* (?) and this leads us to remark, that the ovarian tumour often rises above the brim of the pelvis without leaving the pelvic cavity, to the walls of which it has become strongly adherent. The solid tumours are particularly liable to become permanently established there, displacing the pelvic viscera, firmly fixing the womb, and even incorporating it in their own substance.

If both ovaries are implicated, inasmuch as they are generally affected successively, and one is less enlarged than the other, the smaller one remains in the pelvis, and its retention is proportionate to the obstacles offered to its ascent by its fellow. It is wedged in between the uterus and rectum, even if there are no adhesions. If we find the above-mentioned irregularity in the uterus and the vagina, and at the same time discover an immoveable tumour in the pelvis, which weighs upon the posterior walls of the vagina, and pushes it together with the uterus forwards, it may be assumed, if there are no countervailing symptoms, that both ovaries are diseased.

As the tumours increase, and their contents often have an outward tendency, inflammation may arise between the cyst and some part of the parturient canal. The tumour most frequently voids its contents through the vagina; and we subjoin such instances as the reader will not find in the literature of our own country.

Bluff 'Jour. de l'Expérience' relates the case of a woman who by degrees ceased to menstruate, while in the mean time the left ovary, by gradually increasing, had at last attained the size of a man's head, and pressed strongly on the vagina, the womb and right ovary remained unimpaired. Hectic fever came on, in consequence of which an opening was formed on the left side of the vagina, which had become very painful. The contents of the cyst passed through this opening, and the tumour disappeared. The opening being closed, menstruation became regular, and the patient's health was restored.

Helman 'Siebold's Jour. vol. ii.' relates the occurrence of this termination after an effort to lift a heavy weight; probably inflammation had previously softened the tissues, which burst asunder from intense muscular exertion. Wertenkampff also saw the left ovary attain the size of a man's head, and empty itself through the vagina; the patient was cured, and menstruation returned Munro observed a similar substance; but the dropsical effusion returned, and terminated by carrying off the patient. Mme. Boivin saw two similar cases; the one was cured, and in the other the disease returned. Hey 'Prussian Med. Jour.' was on the point of tapping a woman, when water gushed from the vagina, and flowed for four days; the patient recovered. Burdach treated a woman who, on lifting a heavy weight, burst an ovarian tumour, the fluid of which was evacuated by the vagina. A year and a half after, the dropsy had not returned 'Hufeland's Journ. of Prac. Med., June, 1833.' A similar case is published by Forcke 'Hanover Annals, 1838.' In some cases the liquid seems to have sought for itself a more complicated, although a natural passage, by passing through the fallopian tubes, the uterus, and the vagina. Blasius 'Commentatio de Hydrope ovariorum profuente, Halle, 1834' has collected several cases wherein the contents of the cyst were emptied by the fallopian tubes into the womb.

Schmucher also says, that in one case, after the sixteenth tapping, the ovary became suddenly extremely painful in one night, and was followed by the discharge of a large quantity of very offensive ichorous matter through the womb, which discharge continued for some days, and then ceased.

Frank 'De Cur. Ret.' gives a case where serous matter was discharged until death, by the uterus and vagina, to the extent of one pint per day. The patient died of consumption, and thirty-one pints of fluid were found in the left fallopian tube. Sir Astley Cooper mentions, also, a case of this description.

And, lastly, Dr. David D. Davis used to narrate a case in his lectures where the discharge of the fluid was brought on through this channel in country-woman by the jolting of her horse as she rode to market. -*Med. Gazette, Dec.* 6, 1850, *p.* 961.

[With regard to the effect of ovarian tumours on the impregnated womb, we may say, that it is rare that they determine to abortion when there is room for the development of the tumour and the womb. They more frequently bring on premature labour, but generally speaking the morbid and physiological tumours progress side by side until the full period of pregnancy.]

When, from the length of its pedicle, or from the mode of its attachment, the tumour is situated by the side or above the enlarged womb, it neither impedes labour nor aggravates its phenomena.

Often a small or moderately-sized tumour, or a lobe of an irregular shape, prolapses into the recto-vaginal space before parturition has come on, or descends into this space towards the end of gestation, when nature is preparing for the delivery of the woman by a general relaxation of the soft parts of the pelvic cavity. Such cases have been described by Merriman, Denman, Ingleby, Madame Lachapelle, and others; and they often seriously complicate labour, unless, as we shall see when we come to the treatment of these affections, there is a possibility of pushing up the tumour above the womb, in imitation of what in similar cases has often been effected by the sole powers of nature.

The womb, when about to accomplish its important function, may displace a tumour which impedes the performance of that function. When it cannot do so, it frequently bursts the tumour, so as to evacuate its contents through the vagina, and to allow parturition to proceed in safety; and, when we consider what an enormous amount of pressure nature employs to produce delivery, we need not wonder that it often crushes in this manner an ovarian cyst. This occurred in a case related by Dr. Ashwell. The labour was obstructed by a tumour which burst into the vagina, and discharged a dark offensive fluid. Delivery was then shortly effected, but death took place on the second day. On examination post mortem, a large cyst was discovered growing from the left ovary, the vagina being ulcerated and gangrenous at the part where it communicated with the cyst (Guy's Hosp. Rep. No. 2). A case is also reported by Dr. Langley of an ovarian tumour which burst during labour, and was attended by the escape of several gallons of serous fluid (No. CXL. vol. vi. of Lond. Med. and Surg. Journ., Oct. 4, 1834, p. 319.)

Mr. Brown has lately published a case which illustrates this termination of ovarian dropsy. It is as follows:—" I was called to see a lady pregnant with her second child. I found her ill and weak, complaining of the enormous size of her abdomen, and satisfied in her own mind that she should have twins. At the proper time labour came on, and the child was born without difficulty: but on placing my hand externally to grasp the uterus, I found I could not feel it, for the pelvic cavity was filled by a soft, elastic tumour, and the uterus had ascended out of the pelvic cavity, and was above this tumour. In introducing my hand into the vagina, and endeavouring to reach the uterus to remove the placenta, and pressing my other hand over the uterus, I had the pleasure to feel the tumour, which I felt was an ovarian cyst, suddenly rupture, and discharge its clear amber coloured fluid down the side of my arm. On a subsequent confinement not a vestige of this tumour could be felt."

An ovarian cyst may produce scarcely any impediment to delivery, and yet the portion of the sac which has entered the septum may inflame, discharge its contents and the patient recover. Thus Dr. Davis saw a tumour in the left iliac region, complicating but not impeding labour, produce dangerous symptoms, and burst in the vagina on the 27th day after delivery. The tumour disappeared, and the patient recovered. Whether the disease was ovarian or uterine could not be positively determined, but it was most likely the first.

The bursting of the cyst, and effusion of its contents into the peritoneal cavity, is a third termination of ovarian cysts, and we shall soon show that the accident is attended by much less danger than has been hitherto supposed, provided the contents be of a fluid and albuminous nature. Dr. Ingleby had noticed this termination during pregnancy. Mr. Headland (Lancet, June 22, 1844) relates a case, and Dr. Peddie (Medical Times, Feb. 22, 1844) mentions that a woman, in whom he clearly detected an ovarian tumour about the size of a child's head, became pregnant, and after delivery no trace of it could be found. It is therefore fair to conclude that it burst during delivery; and, as it did not re-appear, that it was effectually cured.

There is a fourth termination of an ovarian tumour—the expulsion of the whole tumour through the vagina. There is, as far as we are aware, but one recorded instance of this natural operation of extirpation of the ovary, and it has been published lately by Mr. Rankin, of Carlisle, in the 'Edinburgh Monthly Journal' (July, 1850).

Mr. G—, twenty-seven years of age, was the mother of five children. The first two labours were natural; but after a difficult labour, from an unascertained cause, she again became pregnant. A large tumour, occupying the cavity of the pelvis, interrupted the efforts of nature at the next birth, and delivery with the crotchet was with difficulty accomplished. The patient again became pregnant; and as the tumour was now of greater size, delivery by the natural passage was considered impossible. Delivery was effected, however, by turning the child and forcing the tumour from its place in the pelvis upwards. Thirty-eight days subsequently a tumour was expelled from the body. It was a partially putrid mass, ten inches long, five broad, and weighing fourteen ounces, consisting of a dense, fibrous substance, fringed here and there with small cells, emptied of their contents. I examined the vagina (says Mr. Rankin), and detected an opening, small compared with the size of the diseased parts, which must have passed through it; yet, after contraction, it freely admitted two fingers. It was irregular in form; the parts around were indurated; and, with the aid of the speculum, they were found to be inflamed. The bulk from the tumour above the pelvis had entirely disappeared; but on pressure upon its former seat, and counter-pressure from within the vagina, there was still considerable fulness, which might arise from induration of the parts concerned in the recent separation and rejection of the morbid structure. If we listen to the testimony of Dr. Selkirk, of Carlisle, in whose practice the case occurred, and who followed it throughout, we must undoubtedly admit that the tumour was fibrous and ovarian :—

"I am convinced (says Dr. Selkirk—Lancet, Oct., 1850) for the following reasons—be the tumour ovarian or not—it was not intra-uterine. The tumour occupied, during the intervals of impregnation, the right iliac fossa, as was evident to the eye, and palpable to the touch; and, on internal examinations, it always pointed in the same direction. I remember well that, during the first stage of labour, in her confinement in 1846, which was protracted from what I at that time deemed an unusual thickening of the posterior portion of the cervix uteri, or the hand partially introduced in order to arrive at a more satisfactory knowledge of the presenting part, the fingers passed beyond the indurated point, and into the uterus. Again, at her labour in 1848, in which the perforator and crotchet became necessary, being obliged to remove the placenta by the hand, the uterus, gliding down by the margin of the tumour, contracted ball-like, quite as low as usual, and to the left iliac fossa. Further, in her labour in February last, I again removed the placenta, the uterus contracting distinctly downwards by the margin of the tumour; and manipulation by the fingers externally detected the womb isolated from, and to the left side of the morbid growth. Now is it at all likely, admitting the tumour to be uterine, that the organ would contract so regularly, satisfactorily, and to its ordinary dimensions, around such a large, diseased mass? I opine not."

We have been careful in establishing the preceding facts, because the case is one of interest, and because it proves that we cannot as yet accord to the microscopical investigator, however eminent he may be, the right of deciding all pathological questions. The fibrous tumour was examined by Professor Goodsir, who said that it could be nothing else than a uterine fibrous tumour; and, influenced, no doubt, by so excellent an anatomist, a distinguished midwifery professor also considered the tumour to be uterine.

We have also shown that this cannot be admitted. Dr. Selkirk recognised its independent extra-uterine position at the labour previous to the one after which it was expelled. It was evidently torn from its pedicle by Mr. Rankin during the operation of turning; for we read (Edinburgh Monthly Journal, July, 1850, p. 14):—"Very considerable force was necessary to bring the child into the pelvis. During the operation the tumour was gradually *forced up* from the cavity of the pelvis into that of the abdomen, and a sensation of *tearing was communicated to my hand, and rendered audible,* which led me to conclude that some fearful disaster was impending. This was soon found to be referrible to the parts of the mother, for the child was born uninjured." The rent through which the tumour passed was seen by means of the speculum; and we may well admire the wonderful agency by which such a tumour was with impunity expelled from the peritoneal cavity of a patient thus almost miraculously cured of a usually fatal complaint; while the well-being of both mother and child shows that Mr. Rankin's conduct should be imitated in a similar case.

It appears that not only the vagina, but the uterus itself, has been perforated through the instrumentality of an ovarian tumour, which, by producing an obliquity of the uterus, effectually pushed the head of the child out of the axis of labour, bringing it to bear on the edge of the pelvis with sufficient force to cut through the walls of the uterus. Tumours of the fallopian tubes are less frequent than those of the ovary, so do they less frequently cause serious obstruction to parturition. We believe there is but one case on record when this occurred; it is given by Chambon de Boulage 'Anciens Journal de Med.-Chir. et Phar.' The patient died, and the obstruction was found to have been caused by an irregularly-shaped, hard, and in part osseous, tumour. It is not surprising that this complication should be a frequent cause of mortality.

*Effects of Ovarian Tumours on the Bladder.*—The bladder soon feels the pressure of an ovarian tumour, and it often affords the first indication of its slow beginnings. It gives rise to a frequent want of passing water, which is the result of a nervous irritation, most distressing to the patient, long before the tumour has acquired a sufficient size to diminish the capacity of the bladder. At a later period of its growth, if the tumour cannot rise from the pelvic cavity, it may press on the urethra, and so impede the passage of the urine that the patient is obliged to bear forcibly backward in order to pass water. When the whole tumour is pelvic, or when a considerable portion of it is forced into the pelvis, it presses so forcibly on the urethra as to render impossible the flow of urine, and require catheterism. It has even necessitated the puncture of the cyst by the vagina, as in a case which occurred to Mr. Ogden 'Lond. Med. Gaz., Jan., 1840'.

When, however, the tumour completely, or even partially, leaves the pelvic cavity, all signs of vesical disturbance cease, and although the bladder may be displaced (as in a case related by Portal), or drawn up, pushed on one side, and diminished in size, still it, generally speaking, adapts itself with wonderful facility to the emergency.—*Med. Gazette, Dec.* 20, 1850, *p.* 1059.

128.—*On Ergot of Rye.*—By Dr. Meigs of Philadelphia.—Dr. Meigs of Philadelphia, in his valuable work on midwifery, in speaking of ergot, says:—"A labour is effected by the contractions of the muscular fibres of the womb, aided by that of the abdominal muscles. If all the powers employed in a labour could be accumulated in a single pain, lasting as long as all the natural pains do, no woman probably could escape with life from so great an agony, except that small number who are met with, and whose organs, happily for them, make no resistance, but open spontaneously like a door, to let the fœtus pass out. By a beneficent law of the economy the pains of labour are short, not lasting more than thirty or forty seconds in general, and returning once in three or six minutes. Under such pains or contractions, however powerful, the fœtus is safe; for as soon as the contraction is over it lies in the womb free from pressure, and the placenta, which during the contraction had been violently compressed betwixt the womb on which it lies and the child within the cavity,—that placenta, I say, recovers its circulation, and continues during the absence of the pain to perform all the bronchial offices which belong to it. But," he continues, "if an ergotic pain is produced to last thirty minutes, in a case where the placenta is on the fundus uteri, and to be jammed for thirty minutes against the child's breech without an instant of relaxation, who can doubt that its circulation is either wholly or nearly abolished; and that when the child emerges at last from the mother's womb it will emerge quite dead or in a profound asphyxia from the long suppression of its placental circulation? Multitudes of children are born dead from this very cause, by the imprudent exhibition of a medicine which as certainly excites a spasm of the womb as nux vomica does that of the other muscles of the body. For my own part," he adds, "I could say that I scarcely give ergot as an expulsive agent; I chiefly employ it at the moment or just before the birth of the child, in order to secure, if possible, a permanent and good contraction of the womb after labour in women who are known in their preceding labours to have been subject to alarming hemorrhage." —*Dub. Quarterly Journal of Med. Science, Feb.* 1851, *p.* 40.

129.—*Twin Birth, in which the Second Child was Born Eight Days after the First.* Dr. Behr relates the case of a woman, forty years of age, who gave birth to a child at half-past twelve in the day of the 29th of April, and to a second at six o'clock in the morning of the 3rd of May, 1849. Both the children were females. The first child lived an hour; the second, which had been felt to move in the uterus a short time before delivery, was born dead. The pregnancy was at or about the sixth month. The second fœtus only was seen by Dr. Behr: it was about a foot long, and weighed more than a pound. The first child was born with a natural presentation; the second was born footling. The double placenta weighed about three-quarters of a pound. As the second fœtus was being expelled the mother was seized with such severe rigors that it was necessary to hold her on the bed. Immediately after this, profuse uterine hemorrhage occurred, which compelled the midwife to call in Dr. Behr. The patient had been in want of sufficient food during the week, and had been imprudently permitted to leave her bed to follow her household duties. Peritonitis followed, and the woman died on the 21st of May.—*Casper's Wochenschrift.—Med. Gazette, Feb.* 7, 1851, *p.* 227.

---

130.—*Case of Lactation in a Male.*—By Dr. C. W. Horner, of Philadelphia.—The following is a singular case of lactation in an adult male. It occurred in the person of an athletic American, named Charles Collins, aged twenty-two years, a blacksmith, working at his trade in New York. About the 10th of February last, his attention was first drawn to his left breast, which appeared to be enlarging, and continued to increase in size for three weeks, when he came to Philadelphia. After being in this city for three weeks, he became quite anxious in regard to his condition; for, although he suffered very little pain, the mamma had become quite as large as that of a female nursing. He therefore, through the persuasion of an aunt, was, on the 23rd of March, induced to apply at the Clinic of the Jefferson Medical College to consult the faculty of that Institution. His case came up before Prof. Mutter, who upon examination found the mammary gland largely developed, and filled with the lacteal secretion, which differed in no wise from that of a mother. He could assign no cause for this freak of nature: his health was very good, and the other breast natural. A soap plaster was prescribed, and compression ordered to be kept up, which he persisted in for full six weeks, when the gland returned to its usual size; and when I saw him this morning at Fairmont, where he now resides, it was in every respect like the other.—*Philadelphia Medical Examiner.—Med. Gazette, Jan.* 24, 1851, *p.* 176.

---

131.—*The Influence of the Hour of the Day on the Birth and Death of Man.*—By Dr. Casper.—The following are briefly the conclusions of Dr. Casper on the influences investigated by him:—

1. *As to Births.*—More births occur from nine o'clock in the evening

to six o'clock in the morning than during other hours of the twenty-four. Labour pains commence more frequently between midnight and three o'clock in the morning than at other times. Of those births which terminated during the day, the majority were male children. Labour is longer if the pains begin in the day-time than if it commence during the night. This influence is more striking with still-born than with living children.

2. *As to Deaths.*—The maximum general mortality occurs during the earlier hours of the day, the minimum in the evening. Of special causes of death, the relative mortality with reference to the time of the day presents many variations. Inflammatory diseases present their maximum in the after-part of the day; fevers and exanthemata in the earlier hours of the night; hemorrhages in the fore part of the day and in the afternoon; and the neuroses generally in the hours after midnight.—*Med. Gazette, April* 18, 1851, *p.* 704.

---

132.—*History of a Successful Case of Ovariotomy.* By W. E. Duffin, Esq. *With a Description of the Morbid Anatomy of the Sac.* By Dr. R. Lee, F.R.S.—A woman, 38 years of age, having her abdomen enlarged to the size of the eighth month of pregnancy, this size having been attained in seven or eight months, her general health appearing to be good, applied to the author for relief by operation. The rapid growth of the tumour, which appeared to be connected with the left ovarium, had been accompanied by neuralgic pains in the right thigh, in consequence of pressure on the sciatic nerve of that side. The tumour was very movable, indicating the absence of adhesions. The patient was very urgent in her desire for the operation, and very confident that it would be successful, and it was consequently performed, on the 27th of August last, by the author, assisted by Messrs. Fergusson, Ure, and Henry Smith, chloroform having been previously administered by Dr. Snow. The incision, at first of only sufficient size to admit the fore-finger for exploration, afterwards enlarged to three inches, was made in the linea alba, midway between the umbilicus and the pubes. The absence of adhesions having been ascertained, the sac was punctured by a trocar, and 130 ounces of a viscid, ropy fluid, of a light brown colour, were let out. The collapsed cyst, containing a smaller cyst the size of an orange, was drawn through the incision, and its pedicle secured by ligatures. The tumour was then separated, and the pedicle and ligatures were prevented from receding into the cavity of the abdomen by other ligatures attaching them to the wound. The ligatures came away on the 15th day, and the wound was healed on the 22nd day, the abdomen resuming its natural shape and size.

The patient was kept on a light diet, and took opium in sufficient doses for six successive nights, and the bowels were opened by enemata. On the 18th day she was able to get about a little. Her recovery has been complete, and she has been enabled to resume the occupation of dressmaker.

*Dissection of the Cyst,* by Dr. Robert Lee, F.R.S.—The walls of the cyst are composed of three distinct coats or layers. First, a peritoneal covering; secondly, a middle fibrous coat; and thirdly, a dense membranous sac, in which the fluid was contained. In the divided pedicle are seen the cut ends of three large arteries, and of one large vein, and of the Fallopian tube. The peritoneal coat is thin, and loosely attached at the root of the cyst; but beyond this it is thick, opaque, and firmly adherent to the tissue below. The middle coat is thick at the root, and contains numerous branches of arteries, and of nerves with ganglionic enlargements. It becomes thinner as it is expanded over the cyst, is of a dense fibrous structure, and adheres firmly by both its surfaces. The internal membrane is firm and thick, and its inner surface is rough, irregularly puckered, and in some spots of a brown or yellowish colour. It consists of two distinct layers, like the coats of a Graafian vesicle. A smaller cyst is situated near the root of the larger, imbedded in its middle coat, projecting into its cavity, and invested by its lining membrane, which it has pushed before it. The lining membrane of this smaller cyst also consists of two distinct layers, like that of the large cyst.

A group of small multilocular cysts is contained in the middle fibrous coat of the great cyst, and between the outer surface of the smaller cyst and the peritoneum. They have the same structure, contain a similar fluid, and bear the same relation to one another, as the two cysts above described. The author remarks, that "the walls of this ovarian cyst contain all the elementary structures which enter into the composition of the human ovarium in the healthy condition—peritoneum, stroma, and Graafian vesicles, with blood-vessels and ganglionic nerves. Whether all multilocular cysts are formed in the same manner, future observation must determine."—*Med. Gazette. Nov.* 22, 1850, *p.* 893.

## 133.—ON ENCEPHALOID DISEASE OF THE PERITONÆUM.

### By Dr. Snow Beck.

[At a meeting of the Medical Society of London, Dr. Beck exhibited the uterus, ovaries, and portion of the large intestine, taken from the body of a woman who died of encephaloid disease. During life she complained of no pain, though the abdomen was distended with fluid, and covered with dilated superficial veins. She had also obstinate constipation of the bowels, and constant vomiting of stercoraceous matter. A large round smooth body was found behind the uterus, immovable in the pelvis. After death the abdomen was found to be distended with dark brown-coloured serum; the parietal and visceral peritonæum were much thickened, of a grey, somewhat translucent appearance, and dotted over with small masses of cancer, varying from the size of a pin's head to that of two peas. The edges of the intestine were deeply injected, of a dull red colour. The omentum was much wrinkled up and infiltrated with similar matter.]

The uterus was of the natural size, but united into one firm mass, with the ovaries and middle portion of the rectum. No malignant deposit was found in any of the viscera, except one nodule in the pylorus. and it was doubtful whether this were not in the subserous cellular tissue. The intestines were much twisted from their natural positions in the abdomen, and the seat of the constriction was found to be near the termination of the small intestines, and was produced by the contraction of the mesentery drawing the intestine into an angular fold, and so obstructing the passage of the fæces. On more careful inspection, the peritonæum was found little altered; but the subserous cellular tissue was much thickened by the deposit of fibro-plastic material. The cancer was deposited in isolated small nodules, chiefly above the course of the blood vessels, and these probably, by exciting inflammation, led to the deposit of fibro-plastic matter, by the subsequent contraction of which the displacement of the intestines, and the ultimate obstruction to the fæces, was accomplished. The cancer was deposited immediately beneath the peritonæum, in masses of a round or oval form, of a grey, somewhat semi-translucent appearance at the circumference, with a light-yellow opaque centre, extremely like tubercular material. Examined by the microscope, the grey portions were seen composed chiefly of a transparent stroma, containing many granules and numerous cells. The cells were round or oval, of various sizes, yet all small, with defined outline, thickened capsule, and granular contents. Some of these contained two, three, or five nuclei, whilst others appeared not to have any. By the action of acetic acid, the capsule and contents became more transparent, and the nuclei more distinct. The light yellow central portions consisted of nuclei, identical in appearance to those already described, yet with a decided yellow tinge of colour. The stroma was less in quantity, the cells were more crowded together, and the granules in greater abundance. The left ovary was dilated into a thick sac the size of a hen's egg, containing clear light-brown fluid. The interior of the sac was lined by a loose red coagulum. The right ovary formed a mass of solid cancerous disease, in size a little smaller than the left. Covering the ovaries and body of the uterus, and uniting those to the rectum and cellular tissue in the pelvis, was a thick layer of grey thickened subserous cellular tissue, closely dotted over with small nodules of cancer. The contraction of the material had bent the uterus upon itself, anteriorly presenting the curved body of the organ to the finger introduced into the vagina. This smooth rounded surface, coupled with the firm agglutination to the surrounding structures, gave to the finger the feeling of an enlarged and weighty organ pressing upon the rectum. The substance of the uterus was pale, and rather firmer than usual, presenting numerous yellow points on the cut surfaces, which were principally seated near the fundus. They were found to be the diseased blood-vessels surrounded by a yellow-coloured cellular tissue, infiltrated in which were some cells identical in appearance to those already described as formed in the masses beneath the peritonæum. The neck of the uterus was in no way altered from the natural appearance—the orifice large, open-fissured, and the lips swollen. Surrounding the orifice were several small round transparent bodies, filled with transparent white-of-egg mucus, and at one side of the orifice a rounded sessile mass projected from the lips. This on being opened was seen to be a cyst filled with transparent white-of-egg mucus, which contained, at one part, many compound granular corpuscles and fat globules. There was no ulceration or excoriation present. Apart from the interest which this case presents, as one of malignant disease infiltrated beneath the peritonæum, thus giving rise to inflammation and the exudation of fibro-plastic material, by the contraction of which latter produce great displacement of the viscera was produced and permanent obstruction of the intestines, it offers an excellent demonstration of some of the errors which have been imported from abroad into the department of pathology. It is said, that the body of the uterus is not liable to inflammation, because there is no cellular tissue in the part. Here is a demonstration, not only that this tissue exists, but that it is infiltrated with cancer cells. Again, this patent state of the orifice is said to be "pathognomonic" of ulceration, yet no ulceration is here present, nor is there any excoriation. The fissures at the orifice have also been said to depend on lacerations during parturition, whilst here they are shown to depend on a swollen state of the structures of the neck, depending upon an enlargement of the glands by retention of their contents, the structures being constricted within a circumscribed compass, and hence becoming folded, and forming fissures between the folds.—*Lancet, Feb.* 1, 1851, *p.* 120.

# ADDENDA.

## 134.—ON THE STATE OF THE BLOOD AND THE BLOOD-VESSELS IN INFLAMMATION.

(From a Review of the works of Messrs. Paget, Jones, and Simon, in the British and Foreign Medico-Chirurgical Review.)

"The very difficulty of exactly defining the process of inflammation may be our guide to the most hopeful method of investigating it. When we see such gradual transitions, from the normal process of nutrition to the disease of inflammation, that we cannot draw a definition line between them, we may be sure that the main laws of physiology are the laws alike of the disease and of the healthy process; that the same forces are engaged in both; and that, though interfered with by the conditions of the disease, they are not supplanted or annulled.

"Now, such transitions from the normal processes to that of inflammation are not rare. We may trace them, for example, in the gradual passage from the active exercise of the brain, or of the retina, to its 'irritation' when overworked, and thence, to its complete inflammation and impairment of structure, after long exposure to what had been a natural stimulus, or to what, in a less degree, might be so. Or, on the introduction of medicines, such as certain diuretics, into the blood, we may trace gradations from the normal increase of the functions of the kidneys, under what is regarded as no morbid stimulus, to their intensest inflammations. Or, again, in the application of an abnormal stimulus, such as that of a heat greater than the natural temperature of the body, where shall we mark the line at which inflammation begins to supervene on health? We may, indeed, say that stagnation of blood, or effusion of liquor sanguinis, shall be the condition *sine qua non* of inflammation; we may call whatever falls short of these, 'active congestion,' 'irritation,' or by any other name; but in practice, such distinctions are often impossible, and sometimes untrue; and in study, the terms are convenient for the sake of brevity rather than of clearness."

[The conditions necessary to healthy nutrition are as follow:—1st. A regular and not far distant supply of blood. 2nd. A right state and composition of that blood. 3rd. A certain influence of the nervous force. 4th. A normal state of the parts in which nutrition is to be effected. All these are usually altered in inflammation. I. Of the supply of blood. Now, what changes take place in the condition of the walls of the blood-vessels in a part where the inflammatory state has developed itself?]

The effects of various kinds of artificial stimuli upon the calibre of the blood vessels, has been the subject of examination by a great number of experimentalists; and there is a very general accordance in their results. Mr. Paget has made much use of slight mechanical stimuli.

"If, as one is watching the movement of blood in a companion artery and vein, the point of a fine needle be drawn across them three or four times, without apparently injuring them or the membrane over them, they will both presently gradually contract and close. Then, after holding themselves in the contracted state for a few minutes, they will begin again to open, and, gradually dilating, will acquire a larger size than they had before the stimulus was applied.

"Simple as this observation is, it involves some cardinal facts in our pathology. It illustrates, first, the contractile power of both arteries and veins; and, by the manner of their contraction, which follows at some interval after the application of the stimulus, and is slowly accomplished, it shows that their power of contraction is like that of parts with simple or organic muscular fibres. And one may notice here the illustration of the stoppage of hemorrhage from small vessels. In one cut we may divide a hundred such vessels as these on the surface of a stump, and they may cease to bleed in a few seconds: doubtless, the very stimulus of the knife, while dividing them, has made their walls contract and close.

"But, again, the experiment shows the vessels reopening and becoming wider than they were before, either yielding more to the pressure of the blood which previously they resisted with more strength, or else dilating, as of their own force, with that which Mr. Hunter called active dilatation, and compared with the act of dilatation of the os uteri. In whichever way the dilation is effected, whether it be active or passive, the vessels will not at once contract again under the same stimulus as before affected them. The needle may be now drawn across them much oftener and more forcibly, but no contraction ensues, or only a trivial one, which is quickly succeeded by dilatation. Yet, with a stronger stimulus, such as that of great heat, they will again contract and close. And such a contraction excited by a cautery may last more than a day, before the vessels again open and permit the flow of blood through them. So that in this we have an illustration of the secondary hemorrhages from vessels, which, after their first closure, have not been sealed by the coagulating blood, or the exudation of lymph,—as well as an illustration of the effect of the cautery or of hot water in again checking such hemorrhages, and more permanently closing up the vessels."

The influence of various agents upon the arteries in the web of the frog's foot has been carefully studied by Mr. Wharton Jones, and the following are his general results:

"1. Constriction may slowly take place, and be slowly succeeded by the normal width This I have found to be the effect of the action of the sulphate of atropia. A solution of this substance, in the proportion of three or four grains to the ounce of water, applied to the web, causes constriction of the arteries, in about the same time that it causes dilatation of the pupil when dropped into the eye. In other words, it causes contraction of the circular fibres of the muscular coat of the arteries in about the same time that it causes contraction of the radiating fibres of the iris. As in the case of the iris, the arteries slowly recover from the action of the atropia.

"2. Constriction may quickly take place, and be soon succeeded by the normal width, or a width not much exceeding the normal. This has been found to be the effect of the moderate application of cold, mechanical irritation, and galvanic irritation. When a drop of cold water is applied to the web, the arteries are seen to become constricted, but they soon resume their previous state. Slight pressure on the web, with a blunt point, for example, in the situation of an artery, excites constriction of it, but by and by the vessel becomes dilated, as before. When the web is subjected to the influence of a single pair of plates, constriction of the arteries is induced, succeeded by dilatation, as in the preceding cases.

"3. Constriction either does not take place at all, or, when it does, it very rapidly gives place to great dilatation. This is the effect of such agents as the following:—A solution of sulphate of copper (gr. xvj—℥j) with wine of opium (ʒj) dropped on the web, I have generally found to cause primary dilatation of the arteries. A strong solution of common salt I have found to have a similar effect, only, perhaps, momentary constriction has more frequently preceded the dilatation. Battley's *liquor opii sedativus* usually first excites constriction of the arteries, but dilatation quickly supervenes. A drop of spirit of wine immediately causes constriction, but this is soon followed by dilatation of the arteries.

"4. Dilatation, preceded or not by momentary constriction, may slowly yield to constriction, which remains permanent. This is the effect of sulphate of copper in a concentrated solution. When a point of bluestone is rubbed on the web, in the neighbourhood of, or over an artery, the vessel slowly but steadily becomes completely constricted, and remains so."

[The dilatation is, however, by no means uniform, but presents all the varieties of form which we are accustomed to recognise in aneurisms or aneurismal dilatations of great arteries, and]

Besides their increase in calibre, we find that the vessels of inflamed parts are dilated in length; they consequently become more tortuous, and their pulsations are stronger than natural, each impulse increasing their tortuosity. This change may be well seen in the vessels of the conjunctiva; in which part, according to Mr. Wharton Jones, the small arteries may be recognised by their pulsations, these being manifested by increased bendings as the pulse-waves pass through them. It is felt in the violent throbbing, which is frequently one of the most painful sensations of an inflamed part.

On the whole, then, we may conclude, that the *dilatation of the vessels*, especially of the arteries, with a weakening of the resisting power of their walls, is one of the most constant phenomena of the inflammatory state.

[A change in the rate of movement of the blood, affects the supply of blood to the tissues of an inflamed part. There is here also a want of agreement as to the cause and consequences of the retardation, which all believe to be present. There is first, undoubtedly, a state of active congestion induced by the application of an irritant, and indeed we may easily imagine this to be the state of many internal organs, when actively discharging their functions. The passage of this state of active congestion into the normal condition, is indicated by the relaxation of the current of blood with a gradual contraction of the vessels, and]

The transition to the inflammatory state is marked by a further retardation of the current, without any diminution, but (it may be) with even an increase, in the diameter of the vessels. This may be observed as the consecutive result of the application of stimuli to the bat's wing; but for the sake of bringing all the phenomena into view at once, Mr. Paget recommends the infliction of such an injury as passing a fine red-hot needle through the membrane.

"The first effect of such an injury (in addition to the charring and searing of the membrane, the obliteration of its blood-vessels, and the puckering of the portion of it adjacent to the burn) is to produce contraction of the immediately adjacent arteries and veins. They may remain closed, or, as I have already described, after being long closed, may again open, and become wider than they were before. This dilatation follows more certainly, and perhaps without any previous contraction in the arteries and veins at a little distance from the burn. In these there speedily ensues such a state of 'determination of blood' as I have already described: in arteries and veins alike the stream is full and rapid; and the greater accumulation, as well as the closer crowding of the red corpuscles, makes the vessels appear very deep coloured. The contrast of two diagrams, showing the natural and the stimulated conditions, illustrates this difference sufficiently well. The vessels of the one, nearly twice as large as those of the other, darker, and more turgid with blood; and, in the one, numerous capillaries which are not visible in the other. But diagrams cannot show the changes in the mode of movement. Close by the burn, the blood which has been flowing rapidly begins to move more slowly, or with an uncertain stream,—stopping, or sometimes ebbing, and then again flowing on, but, on the whole, becoming gradually slower. Thus it may, at length, become completely stagnant; and then, in the vessels in which it is at rest, it seems to diffuse and change its colour, so that its crowded corpuscles give the vessels a brilliant carmine appearance, by which, just as well as by the stillness of the blood, they may always be distinguished. As one surveys an area surrounding this part in which the blood is stagnant, or moves slowly, one sees the streams increasing gradually in rapidity. And often, when there is stagnation in a considerable artery, one may see the blood above or behind it pulsating with every action of the heart, driven up to the seat of stagnation, and thence carried off by the collateral branches, while in the corresponding vein it may oscillate less regularly, delaying till an accumulated force propels it forward, and, as it were, flushes the channel.

"Again, in the same area as that in which the movement is pulsatile or oscillating, and in the area beyond it, one sees the full and rapid and more numerous streams of 'active congestion;' and these may extend over a space altogether uncertain.

"Such is the general condition of the circulation round a part thus inflamed: but the varieties in lesser points that may be presented cannot be described. These must be seen; and, indeed, the whole sight should be viewed by every one who would have in his mind's eye a distinct image of what in practice he must often too obscurely contemplate."

Mr. Paget notices the remarkable continuance of the fluidity of the blood in the vessels, notwithstanding its retardation, or the entire cessation of its movement. "I have found it fluid," he says, "after at least three days' complete stagnation, and so I believe it would remain till it is cleared away, unless the part sloughs. In the latter case, it would coagulate, as it does in carbuncles and the like, which hardly bleed when we cut them through; but, so long as the blood is fluid, though stagnant, it may be driven from the vessels with full force, as soon as an easy exit for it is made by cutting into the inflamed part, or opening one of its veins." This fact is obviously one of the same order with that of the continued fluidity of the blood included in a part of an artery cut off from the current of the circulation between two ligatures; and it leads, with several others of the same order, to the belief, that the continued fluidity of the blood is dependent upon the vital condition of the parts with which it is in contact. It is from this property of the blood that the inflamed part is enabled to return to its natural state, provided the disturbing cause has not acted with too much violence; which would not have been the case if its vessels had become choked up with coagula.

[On the other hand, when the stagnation occasioned by the application of a strong solution of salt becomes dissipated,]

"The flow of blood is observed to be re-established in the following manner: the agglomerated mass of red corpuscles in a given vessel, exposed to the force from behind in the artery leading to that vessel, is seen to oscillate, yielding a little at each stroke of the heart, and again recoiling. If the vessel in question has an outlet into another in which the flow of blood is free, it is seen that the agglomerated mass of red corpuscles, being at last moved onwards, protrudes into the free vessel, the stream in which detaches and carries away the corpuscles composing the protruding part. In this manner, successive portions of the agglomerated mass are carried away, until at last, reduced to a small size, it is all driven onward by the stream from behind into the stream in front, where it is broken up into its constituent corpuscles. The blood has now free course in the obstructed vessel. In this way, one vessel after another is cleared, until the circulation is fully re-established in the web.

"The process just described may be promoted by applying to the web any of the agents above mentioned, as possessing the property of causing dilatation of the arteries, and accelleration of the flow of blood—*even a solution of salt.* It is to be remembered, however, that the solution of salt, for instance, if strong, may exert its property of causing dilatation of the arteries, with acceleration of the flow of blood in vain, in consequence of its tending to keep up the stagnation by virtue of its other property of abstracting water from the blood by endosmose, and thus inspissating the plasma.

"The re-establishment of the flow of blood, in the manner described, is to be attributed to the force from behind operating on the agglomerated mass of red corpuscles, now become loosened by having imbibed the thinner plasma of the blood flowing against it. The promotion of the process, by the applications referred to, is an interesting illustration of the *modus operandi* of stimulating collyria, applied to the eye, for the cure of inflammation of the conjunctiva."

[It has been seen that the first effect of stimulating applications has been to produce contraction of the arteries, and it is commonly stated that with this contraction there is acceleration in the current of the blood. Mr. Paget is fully satisfied that]

"*The velocity of the stream, in any vessel of an inflamed part, is not determined by the diminution or enlargement of the channel.* Without change of size, the stream may be seen decreasing, from extreme velocity to complete stagnation."

[Mr. Wharton Jones attempts to explain the retardation of the blood, to a change in its condition whereby it becomes inspissated by the loss of its serum, the corpuscles thus tending to aggregate together and block up the vessels. We shall first notice the judicious view of Mr. Paget. He says,]

"On what the alteration of movement of the blood in such a case depends, I cannot tell; but we have facts enough to justify such an hypothesis as that there may be some mutual relation between the blood and its vessels, or the parts around them, which, being natural, permits the most easy transit of the blood, but, being disturbed, increases the hinderances to its passage. Such hinderances appear to be produced by the addition of salts of baryta, or of potash, to the blood; the presence of an excess of urea in the blood probably produces the like effect: and such facts as these make the hypothesis I have referred to not unreasonable. At any rate, the belief that the more or less rapidity of movement of blood through small vessels may depend on other than evident mechanical relations, cannot appear absurd to any one who has seen the movements of fluid in the Chara, or Vallisneria, or any such plants, in which a circulation is maintained without any visible source of mechanical power."

Mr. Simon obviously entertains the same view. "There exists in the organism," he says, "an arrangement for providing the elements of parts, according to their requirements, with an increased supply of developable blastema." He then goes to show, "that this excess of blastema *in* the tissue depends on an increased afflux *to* the tissue;" and in proceeding to inquire how this is to be accounted for, he proves most satisfactorily, that it cannot be dependent upon any *vis à tergo* derived from the action of the heart or arteries, but must be attributed to a *vis à fronte*, arising out of the molecular changes in the tissue itself. This principle has been so little attended to by physiologists and pathologists in general,—Dr. Alison and his followers being those who have most positively upheld it,—that we think it worth while to quote the following portions of Mr. Simon's argument, familiar though it may be to the minds of many of our readers:

"In the primordial developments of parts, we are able, without difficulty, to satisfy ourselves, that the organs which subsequently become dependent on blood-vessels do at first grow quite extra-vascularly; and that the prolongation of blood-vessels into their substance (a change which, relatively to their previous state, may be called a hyperæmia) only occurs after they have reached a certain maturity: so that if we were to use terms implying the relation of cause and effect between the intimate structure of such organs and their vascularity, we might speak of the structure as determining the vascularity, but by no means of the vascularity as determining the structure; we might speak, for instance, of the ossification of cartilage occasioning its permeation by blood-vessels, since it begins to ossify before it begins to be vascular; but we could not reverse this, and speak of the structural change being determined by the greater vascularity of the cartilage. The change of molecular structure determines the change of vascular supply.

"Guided by this analogy, we are able to draw a similar inference respecting some of the hyperæmial changes which occur in secreting organs: if you remove one kidney, so that there may remain an insufficiency of glandular substance for the excretion of urine, you presently find that the blood-vessels of the remaining kidney have become larger, and that the number of glandular elements in this kidney have likewise become vastly multiplied. Now (so far as we know anything in physiology) we know that the abundance of cell-growth in an excreting organ is an immediate consequence of the presence in the blood of certain matters which it is the function of that grandular cell-growth to eliminate. We are accordingly led to consider the enlargement of blood-vessels as a secondary phenomenon; subsequent to the multiplied cell-growth; necessary to maintain it; and essentially analogous (as I have hinted) to the process by which blood-vessels were originally given to the embryonic organ, only after it had undergone the first steps of its development.

"I may take this opportunity of making two other remarks, as explanatory of our present subject. First, no variation in the *action of the heart* can account for any distributive inequalities of circulation, the heart acts as a forcing-pump for the whole body equally: it maintains all the vessels in a state of similar repletion; it can contract more forcibly or less forcibly than usual—can give much impetus, or little impetus, to the circulation; but what it does for one organ, it does for all; it can show no preference—can do no more for organ A than for organ B or C, any more than a change in the water-level at the New-River Head can stop the supply of No. 1, in a street, while it floods the premises of No. 2. And secondly, the property of mere *elasticity of arteries* would not account for the phenomena of unequal distribution of blood. Elasticity, no doubt, exists to a great extent in arteries, and it fulfils very important uses: by maintaining constant pressure on the blood within the large vessels, it converts the successive impulses of the heart into a continuous circulation of blood; so that when you look at the capillary circulation (in the frog's foot for instance), you do not see it proceeding in successive jerks at each beat of the heart, but running smoothly, evenly, continuously, and never varying. But it will be obvious to you, that elasticity can only give to arteries the faculty of adapting themselves to their contents—the faculty of exerting a counter-pressure on the blood proportionate to the heart's pressure; and that this faculty, or rather this physical property, is not subject in its manifestations to the laws of vital excitability. No physical property akin to elasticity would account for the conjunctiva becoming red, when you put a grain of capsicum into the eye."

[Mr. Simon subsequently inquires whether the increased supply of blood can be due to any unusual action of the arteries,—"a capacity for alternate closure and expansion, synchronous with, and analogous to, the systole and diastole of the heart, enabling it to receive more amply, and propel more vigorously, than the local changes of the part might require. But he says, after the most careful examinations, he has never succeeded in observing anything like rythmical contractions in the vessels.]

He therefore comes, partly by way of exclusion, and partly by the analogy of other physiological phenomena, to the conclusion that, in hypertrophy and in inflammation, it is the striving of the growing elements of the part—hurt by the physical violence, or affected by extremes of temperature, or thrown into rapid chemical changes, or overburdened with their own specific stimuli from the blood—*to grow more, or to grow differently*, than in their previous state; which is the real and essential cause of the derangement of the capillary circulation, the change in the caliber of the vessels being merely a coincident result of the same causative agencies.

[As to the second head of inquiry, "the condition of the blood," we may ask; 1st. How far may a morbid state of the blood of itself suffice to develope the other phenomena of inflammation; and 2nd. What is the state of the blood which is characteristic of the inflammatory state when developed. But even the action of the most specific morbid material in the blood may be affected by the local conditions, as by the previous state of the parts, or by the local application of a general poison. This Mr. Paget proves by a number of familiar facts. He says,]

"In some instances, it is evident, that the localization of a general disease of the blood is determined by a previous condition, such as we may call a weakened or depressed condition—a state of already impaired nutrition—in some one part. For instance, suppose a stream of cold air is impelled on some part, say the shoulder, of a person disposed to rheumatism, it determines, as a more general exposure to cold might do in the same person, the rheumatic state of the blood, with all its general symptoms; but it determines, besides, the part in which that rheumatic state shall manifest itself first or alone. The depressed nutrition of the chilled shoulder makes it more liable than any other part to be the seat of inflammation excited by the diseased blood.

"Or, again, when a virus is inserted, as in all cases of poisoned wounds, the local inflammation produced by the disease with which the whole blood is infected will commonly have its seat in the wounded part. The virus must have produced some change in the place in which it was inserted, as well as in the whole mass of the blood. These cases are, probably, only examples of the general rule, that a part whose natural force of nutrition is in any way depressed, will, more than a healthy part, be liable to become the seat of chief manifestation of a general blood-disease. Thus, a part that has been the seat of former disease or injury, and that has never recovered its vigour of nutrition, is always more liable than another to be the seat of local manifestation of blood-disease: it is, as they say, *a weak part.* Thus the old gouty or rheumatic joint is apt to receive the brunt of the new attack. And the same may happen in a more general way. A man was under my care with chronic inflammation of the synovial membrane of his knee, and general swelling about it: he was attacked with measles, and the eruption over the diseased knee was a diffused bright scarlet rash. A patient under Dr. Budd's care had small-pox soon after a fall on the nates: the postules were scattered everywhere, except in the seat of former injury, and on this they were crowded as thickly as possible. Thus, too, when a part has been injured, and it may be, is healing, a disease having begun in the blood will manifest itself in this part. Impetigo appears about blows and scratches in unhealthy children; erysipelas about the same in men with unhealthy blood. Such facts as these appear to be sufficient evidences that morbid conditions of the blood are most probably the causes of the great majority of so-called spontaneous local inflammations; of such as cannot be traced to the direct influence of any external force, but appear, rather, as having an external origin."

[On the second question, as to the condition of the blood in inflammation, viz.—the alteration which its entire mass undergoes, Mr. Paget warns us not to place too great a reliance on the current statements, as to the increase in the proportion of fibrin. He says,]

"Among the changes observed in inflammatory blood, the principal one—namely, the supposed increase of fibrin—is ambiguous: it may be at once an increase of fibrin and of the white corpuscles of the blood. These two constituents of the blood, the fibrin and the white or rudimental corpuscles, cannot be well separated by any process yet invented; and in all the estimates of fibrin, whether in health or in disease, the weight of the white corpuscles is included. Now, in many inflammations, these corpuscles are increased, and we have no means of clearly ascertaining how much of an apparent increase of fibrin is really such, and how much is due to the corpuscles entangled in the fibrin. Till this can be settled, I think we may not deduce any of the local phenomena of inflammation from the increase of fibrin in the blood; neither, more assuredly, can we trace, as some do, the fever and other general signs of inflammation to the abstraction of fibrin and albumen by the exudation from the blood."

In Mr. Simon's remarks upon this subject, we find material for special comment; this gentleman having, to our great surprise adopted what we must call the strange hypothesis of Dr. Zimmerman, that the fibrin of the blood is one of those elements of the circulating fluid "which have arisen in it from its own decay, or have reverted to it from the waste of the tissues;" instead of being as most physiologists regard it, "that ingredient of the blood which, in the ascending scale of development, stands next for appropriation into the living textures of the body, and which represents the ripeness, and perfection, and nutritiveness of the blood." Had this doctrine been propounded by any one whose opinions on such a subject were entitled to less weight than Mr. Simon's, we should not have thought it requisite to stop to notice it; but put forth, as it is, in the midst of a course of lectures, whose general character is so high as undoubtedly to attract attention to it, we shall feel it necessary on a future occasion to enter upon a careful examination of the arguments which have induced Mr. Simon to adopt it. At present, we must confine ourselves to a summary of the affirmative grounds which appear to us most satisfactory for continuing to hold the doctrine, that the fibrin is the element of the blood most directly concerned in the nutritive operations.

The fibrin occupies an intermediate grade between albuminous matter and the solid tissues. It has the chemical composition of albumen ; but whilst the latter is a mere chemical compound, totally destitute of vital endowments, the fibrin, in its disposition to pass spontaneously into an imperfect form of solid tissue, after being removed from the vessels within which it circulates, shows itself to be possessed of something more than physical or chemical properties. Holding this intermediate character, we must regard it as either in a state of *progression* from the albuminous "raw material" towards the living tissues, or in a state of *retrogression* from the latter towards the former. Now if we look, on the one hand, to the gradual development of the fibrin in chyle, in its progress through the absorbent to the sanguiferous system ; and if, on the other hand, we compare the condition of fibrin with that of the *known* products of the disintegration of the tissues, such as urea, kreatine, or extractive matters ; we cannot feel the slightest doubt that the fibrinous condition is a stage in the onward course of the nutrient material, and not in that retrograde metamorphosis of the effete matters, which we see to be everywhere tending to the reproduction of the conditions of chemistry and physics, to the utter extinction of those of vitality. Now even Mr. Simon will probably allow, that the fibrillation of fibrin is a result of its vital endowments ; and we would ask him whether any such endowments can be shown to persist in any substance whatever, which is an undoubted product of disintegration. All the objections which he adduces in the latter part of the extracts we have cited, to the idea that fibrin is ever developed into tissues of high organization, are very easily removed. when the facts are fairly considered. We do not hold the extravagant doctrine that fibrin is capable, by its own inherent endowments, of passing into the higher forms of organization ; or of developing blood-vessels, nerves, or other special tissues, apart from the influence of a living organism. The coagulum of fibrin, in blood drawn from the body, presents a very imperfect approach towards the fibrillation of a clot of small size effused within the body, still less towards that of a fibrinous exudation poured out in a thin film upon the surface of a living membrane, or infiltrated into the interstices of a tissue. The further the particles of any such coagulum are removed from a living surface, the more do they correspond with those of a coagulum formed out of the body; and this is why the inner portion of the coagulum of an aneurismal sac does not display the organization which is presented by the outer. It is admitted on all hands, that a low and simple form of fibrous tissue may be produced by the mere coagulation of fibrin; and this, as we believe, can only undergo development into higher textures, when in such immediate proximity with a living surface as to be able to receive vessels from it. But albumen shows not the slightest vestige of such a tendency to organization; and surely it is more probable, that a substance whose plasticity is thus manifested by its own efforts to assume an organised character, should be the pabulum for the growth of cells, &c., in which higher tissues are formed, than that they should make use of a material which does not exhibit any plastic properties whatever, so long as it remains in the condition in which it has been first introduced into the body. Further, we may remark, that it appears from the observations of Mr. Paget upon inflammatory effusions, that the strongly fibrinous exudations unquestionably rank higher in organic character than those in which cell-formation is more abundant; the latter being characteristic of tuberculous and other cachectic conditions, whilst the former mark the healthy state; and the latter having a tendency to degenerate, whilst the former are disposed to become more completely organized. Again, if the doctrine of Zimmerman and Simon be true, we should expect that the proportion of fibrin would be greater in venous than in arterial blood; whereas, if there be any difference, it is on the contrary side. And again, in diseases which are characterised by a peculiar tendency to disintegration of the solid tissues, such as idiopathic fevers, scurvy, &c., we should expect to find a marked increase in the proportion of the fibrin of the blood; whereas, so far is this from being the case, that unless an intercurrent inflammation be present, the proportion of fibrin in these diseases is below the usual average, and its coagulum is less perfect than in health.

Reviewing our whole enquiry into the alteration of the blood in inflammation, we may briefly sum up its results, by saying, *first*, that there is ample evidence that the presence of a poison in the blood, which disturbs its normal nutritive relations to a particular tissue, may of itself be a sufficient *cause* of inflammation in that tissue; that this cause acts, however, with more potency, when the vitality of the part has been previously depressed by local causes, so that the influence of the poison may be thus caused to expend itself chiefly or solely upon such part; and that there are many cases in which inflammation is produced by local causes, which cannot be conceived to act primarily on the blood: and *secondly*, that the alterations in the general mass of the blood, which are commonly accounted to be characteristic of inflammation, (such as the increase in the proportion of its fibrin, colourless corpuscles, and water, and the diminution in the proportion of its red corpuscles, albumen, and salts,) cannot be looked upon in any other light than as *results* of the establishment of the inflammatory condition —constituting, in fact, that series of changes in the circulating fluid, which is of parallel order to that which occurs in the solid tissues wherein the inflammatory action has been set up.—*Brit. and For. Medico-Chirurg. Review, January*, 1851, *p.* 127.

## 135.—ON INFLAMMATION, &c.

(From a Review of the works of Messrs. Paget, Jones, and Simon, in the Edinburgh Monthly Journal.)

[The following is another abstract of some of the most recent and important views of inflammation and its effects, taken from the Edinburgh Monthly Journal.]

The progress of histological pathology has taught us, that during normal nutrition, the blood in the blood-vessels is continually acted upon by the tissues to which they are distributed. It is in consequence of a force from without, and not as a result of a power from within, that the fluid matters of the blood are continually exuding through the capillaries to build up and maintain the tissues. This force must be a vital force,—selective and attractive,—inherent in the parenchymatous structures of organs and tissues. In health, the blood in the capillary vessels is everywhere the same, and the structure of the numerous capillaries themselves is also everywhere alike. By what possible agency, therefore, can there be selected from this blood, and attracted or drawn through these capillaries, structures and fluids so various? Why should one organ select the materials which form bile, another those which constitute urea, and a third such as will produce the acid gastric juice, if it be not an agency in the first case connected with the cells of the liver; in the second, with those of the kidney; and in the third, with those of the gastric follicles? Again, if these various secretions be unusually increased in quantity, is it not because the selective and attractive force is augmented in energy? Does not hypertrophy of an organ or of a limb imply increased action in the parenchyma of the one and of the other, as the cause of that hypertrophy? If so, we cannot ascribe the increased nutrition primarily to the blood or to the vessels. Besides, do we not know that nutrition is carried on, and the formation of the embryo commenced, in the germinal membrane long before the existence of either blood or blood-vessels? Of this there can be no doubt; and the same observation applies to all new formations, healthy or diseased. Hence the blood-vessels themselves are the results, and not the essential causes, of growth. Increased vascularity always follows, and never precedes, morbid actions.

Now, as regards the subject of inflammation, the great question we have to discuss is this,—Do the various changes which constitute that morbid process essentially depend on perversion of the vital selective and attractive power so necessary for nutrition, or do they depend on altered physical conditions of the blood or blood-vessels? To this question Mr. Paget, Mr. W. Jones, and Mr. Simon have favoured us with three different replies, and we now proceed to examine and report upon each.

Mr. Paget considers that the maintenance of any part by nutrition depends upon four conditions—1st, A regular and not distant, supply of blood; 2d, a right state and composition of that blood; 3d, (at least in most cases,) a certain influence of the nervous force; and, 4th, a normal state of the part in which nutrition is to be effected. He believes that inflammation may have its beginning in any one of these conditions,—as in an alteration of the blood in rheumatism, in an alteration of the nervous force in irritation of the retina, in an alteration of the proper elements of the tissue in inflammation of the cornea; but that probably it is never fully established without involving in error all the conditions of nutrition. He considers such alterations should be considered as concurrent events, rather than as a series of events of which each stands in the relation of a consequence to one or more of those that preceded it. Hence, if we understand him rightly, inflammation may sometimes arise from one cause, sometimes from another, but it is only perfected when several altered conditions operate together.

Mr. Wharton Jones's inquiry is limited to the state of the blood and the blood-vessels in inflammation; and the conclusion he has arrived at seems evidently to be, that the changes they undergo are the true causes of that morbid process. He is of opinion that, owing to some physical change in the part, the blood becomes more viscous, from an increase of its fibrin. That, in consequence, the blood corpuscles exhibit a great tendency to adhere together, as well as to the sides of the vessels, whereby congestion and stagnation within them are produced; and, as a result of this, the vis-a-tergo pressure causes the serum and liquor sanguinis to exude. Hence, according to this author, the well-known increase of fibrin in the blood during inflammation is the primary change, giving rise to a variety of physical phenomena. How this change takes place is not very clearly stated. He points out that, after section of the ischiatic nerve in the frog, stagnation of the blood is not so readily produced in the web as when it is entire. Hence it is not owing to paralysis of the limb. At p. 40, he seems to ascribe it to exosmose of the serum, which may indeed serve to explain the action of saline solutions, but completely fails in the case of other mechanical irritants, such as a grain of sand. He seems to doubt its being caused by solution of the coloured or colourless corpuscles. Indeed, so far as we can discover, this essential point is left in the greatest obscurity.

Mr. Simon is distinctly of opinion, that the first change which occurs in an inflaming or an overgrowing part, and which leads to its becoming loaded with blood, is not a reflex change operating through the nerves, but it is a direct change, effected by the living molecular structure of the part on the blood which traverses it, or on the vessels which convey that blood. The growing elements of the part—hurt by physical violence, or affected by extremes of temperature, or thrown into rapid chemical changes, or overburdened with their own specific stimuli from the blood—strive to grow more, or in their manner of growth to differ from their previous state. The sudden origination of this effort (as it occurs, for instance, after mechanical injury), suffices apparently in itself to derange the currents of the capillary circulation, to flood the tissue with serous exudation (?), and to lead to those phenomena which are considered pathognomonic of inflammation. Hence, then, according to Mr. Simon, it is not to the nerves, blood, or blood-vessels, we must look for the primary cause of inflammation, but altogether to the structure of the part inflamed.

From what we have previously stated, it will be readily understood, that of the three opinions before us, we consider Mr. Simon's to be the correct one. We cannot agree with Mr. Paget, that various causes may operate, or that the changed conditions to which he alludes, must all necessarily concur. A changed state of the nervous influence, and of the blood, may certainly arise, and very commonly does; but this is a result, and not a cause. Then, so far from increased spissitude of the blood always preceding inflammation, we have no proof that this is ever the case. That such spissitude is owing to an augmentation of fibrin, is unlikely, for the facts and arguments of Zimmerman have sufficiently shown, that the increase of this principle is also the result, and not the cause, of inflammation,—an opinion which has been adopted by Mr. Simon. The more, then, we examine this question, the more do we feel satisfied that the primary change is in the vital properties of the tissues inflamed. In hypertrophy, their selective and attractive powers are both increased—in inflammation the selective force is destroyed, while the attractive one is augmented in energy. Hence the exudation, thickening of the blood, and the phenomena of congestion and stagnation, which have been so well described by Mr. Wharton Jones. Blood is not sent or determined to the part, as has long been supposed—it is drawn or attracted there; and it is only by using the latter expressions that the real cause of the increased amount of that fluid in inflamed parts can be understood.

Whilst we consider that Mr. Simon's exposition of the nature of inflammation is, on the whole, very just, he himself must be fully aware that it is in no way original. In point of fact it is the very doctrine which has long prevailed in the Edinburgh school of medicine. It was very ably maintained by Dr. Alison, when professor of the Institutes of Medicine, and is the one which for some years has been taught by the present holder of that chair. Their views, supported by various facts and arguments, have been published, and yet it is curious that while Mr. Simon adopts them, the Edinburgh professors are no where alluded to. Again, whatever differences may exist in opinion between the three authors under review, there is a wonderful unanimity among them in *suppressing* (we use this word advisedly) all allusion to the labours of the Edinburgh pathologists.

An increased attraction of the parenchyma of the tissues affected, being the ultimate cause of inflammation, so far as we can determine it, we may next ask, what constitutes that morbid change—in other words, what is inflammation?

Dr. Alison, in his article "inflammation," in the 'Library of Medicine,' observes, "in order to give the requisite precision to the general notion of inflammation, as a local change of the condition of any part of the body, it seems only necessary to include in it, besides the pain, swelling, heat, and redness, the tendency always observed, even when the changes in question are of short duration, to effusion from the blood-vessels of some new products, speedily assuming, in most instances, the form either of coagulable lymph or of purulent matter." We consider this passage to contain the germ of the doctrine afterwards brought forward by Dr. Hughes Bennett, when he maintained that exudation of liquor sanguinis was the essential phenomenon of inflammation. And here it may be observed, that when pathologists speak of an exudation—a term synonymous with that of the Germans (*exudat*)—there ought always to be understood transudation of the liquor sanguinis through the walls of the blood-vessels. It should be separated from the terms effusion and extravasation, which refer, the first to the transudation of serum only; and the second to hemorrhage from the smaller vessels by rupture of their walls. It is the more necessary to understend this, because we observe that Messrs. Paget and Simon use the terms exudation and effusion synonymously. The former even speaks of inflammatory effusions (!) of blood. Those who speak thus loosely, and who seem to have formed no clear distinction between the *effusion* of serum, the *exudation* of liquor sanguinis, and the *extravasation* of blood, must, indeed, find it very difficult to understand what is meant, when it is contended that the word inflammation ought to be banished from medical language, and the term exudation substituted for it. But this is what the progress of pathology is slowly but surely bringing about.

We feel satisfied that the ultimate cause of inflammation must be sought in a perversion—that is, an increased attraction—of the vital forces regulating nutrition in the parenchyma of organs, and not in any physical obstruction of the vessels from within. -*Monthly Journal of Medicine, Dec.;* 1850, *p.* 527.

## 136.—ON INFLAMMATION OF THE SYNOVIAL MEMBRANES OF JOINTS.

By Sir Benj. C. Brodie, Bart.

[As to the constitutional origin of these affections Sir Benjamin remarks:]

"Inflammation of a synovial membrane may arise as a local affection, the consequence of a sprain, a contusion, or other mechanical injury. In other cases, various joints being affected, either simultaneously or in succession, it is manifestly the effect of a disordered state of the general system; and even in those instances in which the inflammation is confined to a single joint, a careful inquiry will generally satisfy the surgeon that it has had a similar origin. Indeed I must confess that, in proportion as I have acquired a more extended experience in my profession, I have found more and more reason to believe that local diseases, in the strict sense of the term, are comparatively rare. Local causes may operate so as to render one organ more liable to disease than another; but everything tends to prove that, in the great majority of cases, there is a morbid condition, either of the circulating fluid, or of the nervous system, antecedent to the manifestation of disease in any particular structure. Moreover, even in those cases in which a disease may be distinctly traced to some kind of mechanical injury, the character which it assumes depends as much on the state of the general health as on the injury itself. Thus we find a sprain of the ankle, in one instance, to be followed by no urgent symptoms, while, in another, a sprain, not apparently more severe, is followed by intense inflammation, for the removal of which the most active antiphlogistic treatment is required."

In a great number of instances, the synovial inflammation is attributable to a gouty diathesis, evidenced by the existence of lithates in the urine, and according to Dr. Garrod in the blood; or to rheumatic inflammation, accompanied or caused by the predominance of lactic acid in the system (Prout). And the circumstance that such diseases show themselves in the synovial membranes of joints, rather than in the serous membranes which are nearly allied to them, is to be explained by the constant motion of joints, and generally speaking, by their liability to injury from their exposed positions.

[Sir Benjamin insists in the treatment "of the necessity of regarding them as constitutional and not local affections." When the joint is greatly and distressingly distended with serum, it is recommended to make a few minute punctures, and apply an exhausted cupping glass; and as soon as pus is known to have been secreted, to make a free incision into the joint. He then says,]

"If it be a question whether a collection of fluid in a joint be purulent or otherwise, it is prudent, in the first instance, to make a puncture with a grooved needle. If it prove to be purulent, a free opening should then at once be made with a lancet, in a depending situation. It is important that this operation should not be long delayed, lest the matter should make its way out of the joint in other directions, and form irregular and circuitous sinuses among the neighbouring tendons and muscles. It is equally important that the opening should be sufficiently large to allow the matter to flow spontaneously, without it being necessary to have recourse to pressure on the joint. If afterwards there be reason to believe that there is still a lodgment of matter in any part of the joint or among the neighbouring soft parts, the original opening should be dilated, or the surgeon should avail himself of the first opportunity which occurs, of making another opening in a convenient situation; and it will often happen that several such openings will be required before the cure is completed."

The employment of exploring needles (says the Reviewer) has certainly found its chief champion in the writer of the volume before us, and against so great an authority it is difficult to contend. The practice is, however, in our view, a questionable because a dangerous one; and, as we have many times heard it said by perhaps as great a surgeon as Sir Benjamin, need rarely or never be resorted to by a man of tact and experience. We do not of course mean to say, that there is not often extreme difficulty in diagnosing the nature of a tumour, or the contents of a cyst; but we do mean to say, that by unnecessary exploratory punctures, many a malignant growth has been excited to inflame and increase, when it was in a quiescent state." —*Brit. and For. Medico-Chirurg. Review, Jan.*, 1851, *p.* 178.

## 137.—ON A PECULIAR AFFECTION OF THE SHOULDER JOINT.

By Sir Benj. C. Brodie, Bart.

[Sir Benjamin describes a most tedious and annoying affection of this joint, seeming to depend in many instances on a chronic inflammation of the substance of the deltoid muscle, or of the bursa under the deltoid, and to be greatly benefitted by the employment of counter-irritation and the iodide of potassium:]

"The cases here referred to occur more frequently in private than in hospital practice: and (whether it be accidentally or not I do not know) it certainly has happened that I have met with it more frequently in the female than in the male sex. The patient complains of pain, which however is referred not so much to the joint itself as to the arm a little below it, near the insertion of the deltoid muscle. At first the pain is trifling, but it soon becomes severe and constant. The patient describes it as a *wearing* pain, of which she is constantly reminded. It is aggravated by every motion of the limb, and by pressing the articulating surfaces against each other. Not only is there no perceptible enlargement of the shoulder, but after some time, in consequence of the want of use and wasting of the deltoid muscle, it seems to be actually reduced in size. It is not long before the mobility of the joint is impaired, becoming gradually more and more limited. When the patient attempts to raise the elbow from her side, it is observed that the scapula is elevated at the same time with the humerus. She is unable to raise her hand to her face, nor can she rotate the limb so as to place it behind her. When the progress of the disease is stopped at an early period, the mobility of the joint may be restored; but otherwise, although the pain and all other symptoms of the disease have subsided, the joint remains stiff, and to all appearance completely anchylosed. Whatever motion the arm is capable of, under these circumstances, depends not on the humerus, but on the scapula; and it is remarkable to what an extent the scapula, or rather the muscles belonging to it, will accommodate themselves to this new state of things, so as to make up for the deficient motion of the shoulder.

"It certainly is seldom that this disease terminates in abscess of the joint, when proper attention has been paid to the treatment of it, nor has this happened in any case in which I have had the opportunity of closely observing its progress. I have, however, seen cases of abscess with ulceration of the cartilages, and complete destruction of the shoulder joint, in which I conclude that, if I had been consulted at an early period, I should have found the symptoms to correspond with those which I have just described.

"Whether it be from this, or from any other disease, that the joint of the shoulder is brought to such an extreme state of disorganisation, one result is, that it is liable to dislocation, or, more properly, to sub-luxation in the direction forwards. In one case, in which I had the opportunity of examining the parts after death, I found the anterior margin of the glenoid cavity of the scapula destroyed by ulceration, the head of the humerus permanently resting on the ulcerated surface. In another case, in the living person, I found the dislocation to be only occasional, the head of the bone slipping forward so as to make a visible projection in certain motions of the arm, and in certain other motions returning to its natural situation.

"I may take this opportunity of noticing another circumstance, which, though not of much interest in pathology, is of some importance in practice. An abscess originating in the shoulder-joint sometimes presents a peculiar appearance, when it is making its way to the surface. A dissection, which I once had the opportunity of making, will explain at once the nature and the cause of this peculiarity. The abscess, taking the course of the tendon of the long head of the *biceps flexor cubiti* muscle, had suddenly emerged from the joint at the lower end of the bicipital groove of the humerus: then, having taken a direction forward, on the anterior edge of the deltoid muscle, had presented itself under the integuments, having a spherical form, so that it might have been mistaken for an encysted tumour. I met with one case, in which this mistake respecting an abscess of this kind, was actually made by a surgeon of considerable experience, who proposed the removal of the tumour by the knife."—*Brit. and For. Medico-Chirurg. Review, Jan.,* 1851, *p.* 184.

---

138.—*On the Removal of Loose Cartilages from Joints.* By PROFESSOR JAMES MILLER, Edinburgh.—[In his description of the subcutaneous or valvular mode of removing loose cartilages, Professor Miller remarks:]

"In the first place, the patient is to be prepared for the operation. For a day or two, the limb is to be disused, so that previous excitement may have thoroughly subsided. Low diet is enjoined, the primæ viæ are gently yet efficiently cleared, and general secretion is seen to be in a satisfactory state, so that there may be no predisposition to inflammation. Then the foreign body, having been made superficial, is gently pushed to the extreme verge of the synovial pouch; either on the inside or on the outside of the patella, as may be most convenient The internal position is usually the preferable; and there it is retained fixedly, by the fingers of an attentive and steady assistant. A tenotomy needle, or thin and narrow bistoury, of fine edge, is passed in an oblique direction; and an incision, a little larger than the outline of the cartilage, is made through the tense synovial membrane. The instrument is then withdrawn slowly and cautiously, the finger gently yet firmly following and consolidating its track. A few drops of blood escape, but not a particle of synovia; and no air has obtained admission, even to the areolar tissue. The integumental wound is immediately and carefully occluded, by plaster or collodion.

"The foreign body is then gently pressed through the aperture in the synovial capsule, which aperture, as has just been stated, is made sufficiently free to admit of this being accomplished without force or difficulty. When exterior to the capsule, it is coaxed through the areolar tissue—sufficiently lax, readily to admit of this—by gentle pressure of the fingers; not in the track of the puncture, but in a different direction, probably at nearly a right angle to it. When about an inch and a half, or two inches, from the synovial wound, it is there permitted to remain. Not permanently, however, as has been proposed. Otherwise, acting still more as a foreign body in its recent and raw site, inflammatory action is excited, suppuration is all but inevitable, and extension to the synovial membrane becomes extremely probable; the very result to the avoidance of which all our pains had been directed. For two days, or three at the utmost, it is suffered to remain in its new locality, undisturbed; the most careful prophylactic treatment being meanwhile employed, both generally and locally, so as to avert undue excitement. By that time the synovial wound will have closed by adhesion; and both tracks—that of puncture as well as that of extrusion—will have been consolidated. Then, the substance having been fixed as before, a direct incision is made upon it; not more free than is sufficient for its ready removal. After it has been lifted out, the superficial and slight wound is brought together by strap; and, in all probability, it unites by adhesion."—*Brit. and For. Medico-Chirurg. Review, Jan.*, 1851, *p.* 88.

---

## 139.—ON THE TREATMENT OF ANEURISM BY PRESSURE.

By Professor James Miller, Edinburgh.

[The following extracts on this subject are interesting.]

"No doubt," he says, "some surgeons have experienced remarkable success in tying particular arteries. Mr. Syme, for example, has been very fortunate with the femoral. But it is more than probable that, as in similar sequences of success in lithotomy, and other capital operations, the progress of time will include disastrous cases, which will not fail to bring down the result to a more ordinary average.

"In tying an aneurismal artery, no skill in the operation can altogether avert risk. Of phlebitis; for the vein usually is in immediate apposition with the artery, and must be exposed to some roughness of manipulation. Of gangrene; for, impression on the limb's circulation is inevitably both great and sudden. Of hemorrhage, above all; for the artery tied is necessarily more or less altered in structure and function, and consequently prone to the asthenic results of inflammatory action. Had there been no chronic arteritis, there had been no aneurism. Pressure, unskilfully and rashly applied, is at least equally capable of causing these risks. But pressure, employed according to the principles now enjoined, in its modern revival, escapes them all. . . . .

"That pressure is to supersede ligature altogether, in the treatment of aneurism, no one can imagine. Some patients, by idiosyncrasy, may be intolerant even of such modified pressure as is required; and to some aneurisms the application of it is impracticable. There seems every reason to anticipate that the result of experience will determine, that some aneurisms are unsuitable for either deligation or pressure; absolutely incurable, by reason of universal and extreme arterial degeneration. And that, of the curable cases, some are suited for pressure, others for deligation; just as, in stone, patients are not indiscriminately, subjected to lithotomy as in former years, but while some are cut, others have the calculus removed by lithrotripsy; neither operation being exclusively followed in the practice of any wise and thoroughly-accomplished surgeon. And further, it will no doubt appear, that there are certain cases of aneurism, in which it were both unwise and unwarrantable to operate by the knife, when experience has shown that pressure will suffice; just as we should be culpable in removing a stone by wound of the bladder, which experience tells us may be safely crushed, or removed by the urethra entire. . . . .

"Mr. Cusack also has communicated to me the notice of dissection in the case of a patient who had been cured of aneurism by pressure in October, 1843; and who died in December last, of diseased brain. The femoral artery was pervious, and of ordinary size, down to the site of the tumour; there its cavity was obliterated, and its coats flattened out into the form and appearance of a ligamentous band. The obliteration extended to about two inches and a quarter, occupying the last inch of the femoral, and the upper one and a quarter inch of the popliteal artery; beneath this point the vessel again becoming pervious, and nearly of its natural size. The profunda and its branches were of ordinary bulk; and the branches of the popliteal were not above the usual dimensions. The vein accompanying the main artery was full of blood, but quite pervious, from the groin down to the lower extremity of the popliteal space. Its external characters were normal throughout; excepting just opposite the obliterated portion of the artery, where the coats of the vein were much thickened and indurated. The internal saphena vein was large, and filled with a fibrinous clot.

"In this case the points of pressure had been in the upper and middle thirds of the thigh, alternately; and it is most satisfactory to have such ample proof of the curative agent having produced no evil effect whatever, on the vessels directly implicated."—*Brit. and For. Medico-Chirurg. Review, Jan.,* 1851, *p.* 88.

---

140.—*On the Treatment of Periostitis.* By PROFESSOR MILLER, Edinburgh.—[In speaking of this disease the author recommends a practice worthy of a further trial. He says,]

"Sometimes action seems to be partially arrested, yet does not decline; a tense and painful swelling remains, unabated, and on the contrary tending still to increase. It is plain that relief of tension would be a most important indication in such circumstances. For a similar state of matters, unconnected with bone, we would freely practise incision; tension would be at once relieved, and action would speedily decline; the wound would suppurate, and its margins perhaps slough, but granulation and closure would speedily follow. Here, however, similar procedure would be rash and untoward. Tension would doubtless be relieved; but, with suppuration, which is inevitable, would certainly come either ulceration or death of the bone; the very results which we seek to avoid. Direct incision, therefore, is plainly unwarrantable. But, by inserting a fine bistoury or tenotomy needle, at a little distance from the tense part; passing it over, cautiously, beneath the integument; then turning and pressing its edge, so as to divide the tense membrane wholly to the desired extent; cautiously withdrawing the instrument, so as to make a valvular, oblique, and subintegumental wound; and finally closing the single integumental puncture immediately, with isinglass plaster, or collodion—in fact by completing the wound so as effectually to prevent introduction of atmospheric influence, and thereby obviating the chief risk of suppuration—we may obtain diffusion of the swelling, relieve tension, and so facilitate both resolution of the action and discussion of its results. This manœuvre, however, requires skill and caution in its performance; and even with these is not wholly devoid of risk. It is therefore not to be indiscriminately employed, but should be reserved for those cases which otherwise prove obstinate, and in which aggravation and suppuration seem imminent.—*Brit. and For. Medico-Chirurg. Review, January,* 1851, *p.* 87.

## 141.—ON THE ADVANTAGES OF AN ELASTIC CONVOLUTED SPIRAL BANDAGE, IN VARICOSE VEINS AND ULCERS OF THE LEG.

### By JAMES STARTIN, Esq.

[Mr. Startin states that from the many hundreds of cases occurring before him annually, as Surgeon to the Hospital for diseases of the skin, he has observed the advantage of the convoluted spiral bandage over the customary mode of treatment. It is a modification of the plan recommended many years ago by Whately.]

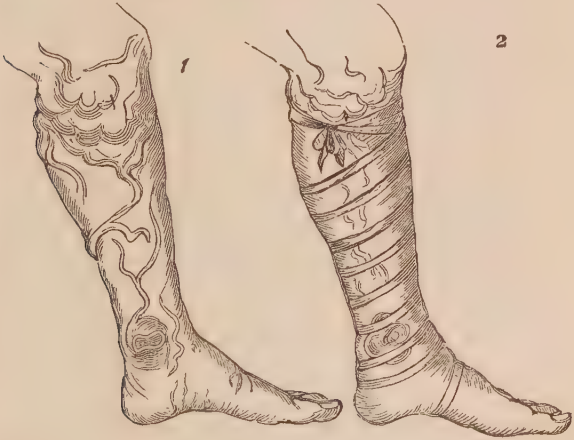
In the following brief remarks on this novel surgical appliance, it is unnecessary to insist upon the causes, or describe a varicose ulcer; suffice it, therefore, to say, that an inability to support the column of blood in the superficial veins, owing to the faulty action or destruction of their valves, constitutes the chief cause; and it is to supply this deficiency by the artificial substitute of a convoluted spiral strip of vulcanized Indian-rubber, which comprises the plan I am desirous of testing by professional experience and opinion. It may be well, however, to premise, that this treatment is specially advocated for those varicose ulcers only which are not complicated with extensive erythema, eczema, impetigo, psoriasis, or other disease of the skin of the leg, and that it will probably be found most useful in that varicose sore, so well characterised by Sir E. Home as "a species of ulcer which is seldom very deep; when it spreads, it is generally along the surface; its shape is commonly oval, the ends of the oval pointing vertically; the edges of the surrounding skin are commonly neither thick nor irregular, but are imperceptibly lost in the ulcer," &c.—(Home on Ulcers, p. 275). Yet it may be borne in mind, that, providing varicose veins are present, and other disease of the skin of the leg is not present, beyond the ordinary œdema or erythema surrounding nearly every ulcer, that the convoluted spiral bandage will exert a beneficial effect, and be found applicable; and this is the case whether the ulcer be round, oval, or irregular, deep or superficial, irritable or indolent, cicatrizing or sloughing, single or several, painful or otherwise; for this bandage interferes with no dressings or manipulations, nor does it conceal the wound, or hinder the application of any other roller, poultice, or remedy,—its sole office being to supply artificially the place and functions of the imperfect or deficient valves, and thus divide the column of blood as obtains in the normal condition of the limb; and I believe it will be found to accomplish this most desirable end most effectually, whilst, at the same time, it constitutes a cool and agreeable support for the leg, and removes that undue tension of the skin so commonly found complicated with varicose ulcers, by furnishing numerous *points d'appui*, and tending thus to prevent or avert those specific diseases of this membrane before referred to which are produced, or materially augmented by a tense state of its parts.

From what has now been stated, it will be understood that the convoluted spiral bandage may be combined with any other treatment, local or general, furnished by experience, or deemed advisable in the cases wherein the apparatus is to be applied; so that it may be regarded as an adjuvant rather than as the *sine qua non* of the treatment; and, when employed with this view, I have much confidence that its value will be generally allowed and appreciated. Before proceeding to describe it, however, it may be well to mention that, during its employment, lotions containing a little purified glycerine (℥ss. ad ℥viiss.) to prevent their drying, and slightly medicated with nitric acid, yellow or black wash, have in my experience proved more useful and suitable applications than plasters or ointments; and I prefer the following method of using these liquids:—A small piece of *bibulous paper torn from the sheet into the size and form of the ulcer* (the object of which is to furnish a soft, smooth surface, and to prevent the dressing sticking to the sore) is first to be wetted with the lotion, and then placed upon the ulcer so as barely to cover its edges; over this a pledget of lint or linen wet in the same solution is next to be laid, and this should be large enough to cover every portion of the discoloured or inflamed skin surrounding the wound. This dressing, when thus applied, may or may not, at the option of the operator, be secured with a turn or two of the common calico roller, wet with the same liquid; and over all is to be placed the convoluted spiral bandage, in the manner I will detail after having briefly described its nature.

This bandage may be manufactured of two or more qualities, according to the class of patient on whom it is to be applied, or the cost to be incurred; the best kind for ordinary use consists of half or three-quarter inch wide elastic band or webbing of vulcanized India-rubber covered with silk or cotton, two yards and a half long, or four or more yards in length, when the external saphena vein is to be supported to its entrance into the falciform opening of the fascia lata. At one end of this narrow band, a piece of strong silk binding, six or seven inches long, the ends of which are to be sewn together, is fixed obliquely, so as to form a sort of loop or stirrup into which the foot is to be placed; the other end of the band is sewn at right angles into the middle of a yard or more of similar binding, which serves, after the fashion of a garter, to fix the bandage below or above the knee or round the pelvis when the spiral turns are completed.

This simple arrangement constitutes the entire apparatus; the webbing or band of which it is composed costs from 1s. to 4d. per yard, according to whether the vulcanised thread constituting its foundation be covered with silk or cotton, or is finely or coarsely manufactured; but another still cheaper and equally efficient method of constructing these bandages exists, which is also the one employed in my public practice; this is, to take a piece of (No. 36) patent vulcanized India-rubber sheeting, of any width, and two and a half yards long, on which parallel lines half or three-quarters of an inch apart are to be marked, so that it may be accurately cut into strips of this width; the incisions should be commenced on these lines alternately, at a distance of three inches from each end of the piece, the object of which is to leave a portion of double the breadth at the end of each bandage, so as to form a loop or stirrup for the foot, as before described. This wider portion of. the bandage being properly fashioned, and an opening made in it, to fit the instep, either with scissors or a stamp made for the purpose, the apparatus only requires, to render it complete, a yard or so of cotton binding of the same colour as the vulcanized sheeting to be fixed at the opposite end of the band, as mentioned when the webbing is employed. The cost for each bandage thus constructed amounts only to sixpence or eightpence.

The method of applying the convoluted spiral bandage, and its effects upon the varicose veins and the sore, will be best understood by reference to the subjoined drawings, by my friend staff-surgeon Pilleau. made from a patient who had been under treatment with it for some few weeks. The case has been chosen, not so much to manifest the rapid improvement of an ulcer of many years' duration and great extent, as to demonstrate the mode in which these sores heal. and the marked effect of the bandage in almost obliterating the appearance of the large varicose veins over which it is applied, and which has been represented without exaggeration or diminution.



From the sketch it will be perceived, that the loop of the bandage is first over the instep, so as to bring the commencement of the elastic band immediately under the outer ankle, which situation is to be preferred, although it can be applied under the inner ankle, should an ulcer or other peculiarity require it. In the plate No. 1, the ulcer represented in the lower third of the leg was originally of the usual oval shape, as will be seen from the part lightly shaded; it was then fully double its present size, and the ends of the oval pointed vertically. These are now transverse, showing the usual effect of this bandage, but owing to the patient's neglect, and several days' standing at the "wash tub," the edges of the sore had become a little elevated. and the healing process had been slightly interrupted. On referring to plate No. 2, it will be seen that two turns of the spiral bandage are made before reaching the sore. the upper turn passing close beneath its lower border, whilst the next or third turn is taken immediately above it; the bandage being then obliquely continued at equal intervals of three quarters of an inch, to an inch or more, until it reaches the knee, where it is fixed by a turn or two of the binding acting as a garter.

This is the general arrangement which I have found it best to follow, as the long column of blood in the external enlarged veins by this means is divided into eight or more short columns, and, consequently, the capillaries of the ulcers are relieved to the extent of this division of the pressure upon them, while much of the tension is taken off the entire skin of the leg, by the blood being caused to pass inwards by the deeper veins, and collaterally by the smaller venous branches. From such a disposition of this simple contrivance, the parts concerned in the reparation of the ulcer are left in comparatively a normal state, and it is surprising how quickly reparation commences when no constitutional cause is present to interfere with the process. The means of cicatrizing in sores thus circumstanced, is, however, somewhat peculiar, and in deep ulcers much resembles what is seen in the reparation of the bone, *i. e.*, the base of the ulcer often heals, leaving an indented cicatrix, the exact form of the sore remaining, as it were, impressed into the surrounding skin, as witnessed in plate (Fig. 1,) although it will be observed, that the lapse of a few months commonly serves to obliterate this appearance.

I trust, from the details now given, that most of the advantages of the proposed plan will become apparent; but there are a few not quite so obvious, which may deserve a passing remark, as they more particularly concern the poorer class of patients—this being more especially the poor man's bandage. The first is, that rest is unnecessary during the treatment, and the extreme ease and readiness with which the bandage may be put on the leg, and the pertinacity with which it retains its position under every motion of the limb, render it peculiarly applicable to this class of patients. The next is the facility that exists of applying poultices or the ordinary dressings of the wound, without removing the bandage, all that is necessary in the former case being to put the poultice over the bandage, whilst in the latter, the lower spiral turn of the band next the ulcer, may be drawn from the leg, and the dressing put upon the wound, and then fixed in its position by letting the elastic band resume its place, when the same process may be repeated with the turn of the bandage immediately above the ulcer, by which means the ordinary tedious process of dressing is reduced to a minute's duration, and the varicose veins have the uninterrupted support of the bandage for any time that may be desired; ablutions, baths, &c., may also be used without disturbing, and with but very little hindrance from the bandage.—*Med. Times, March* 15, 1851, *p.* 285.

## 142.—GENERAL REMARKS ON THE DIAGNOSIS OF TUMOURS OF THE NECK.

### By Dr. P. Redfern.

This always presents great difficulties when the tumours are of large size, only slightly painful, and fluctuate indistinctly. If a complete and accurate history of the case cannot be obtained, more than a general diagnosis may be impossible; but when the precise position of the tumour at its commencement can be made out, when its relations to the larynx and trachea, and its mobility in regard to them and the surrounding parts when it was of small size, can be ascertained, together with the rapidity and manner of its growth, there will be little difficulty in arriving at a satisfactory conclusion.

A *tumour* developed in the substance of *the thyroid body* presents itself in the front of the neck, is usually larger on one side than the other, is firmly connected with the larynx and trachea, moves freely with the larynx in deglutition, and when it is displaced laterally by manipulation. The other features vary with the nature of the tumour.

*In ordinary bronchocele* (hypertrophy) the swelling is soft, projecting, elastic; without fluctuation, pain or tenderness on pressure; it occurs usually in early life, in the female sex, and in particular districts of country; it is simple in its nature throughout, and presents no tendency to degeneration or change of structure; it in no way interferes with respiration or deglutition, nor does it affect the patient's health or comfort until it becomes of very large size, when difficulty of respiration and deglutition, with frequent headaches, occasion the greatest distress, and may end in the death of the sufferer.

In *cystic disease of the thyroid* the nature of the tumour becomes manifest, sooner or later, by the presence of fluctuation in one or more cysts, by a glairy, serous, or sero-sanguineous fluid escaping readily along a grooved needle when introduced, the fluid containing no cellular formations when examined microscopically, or having such a structure as is inconsistent with the idea of the existence of cancer,—by the formation of the tumour taking place at or after the middle of life,—by its slow and painless growth, and by the slight inconvenience it occasions as long as its size is not very great.

*In cancerous disease of the thyroid* (usually scirrhus) the tumour appears between forty-five and sixty-five years of age, is of great and uniform density, and generally painful; it is developed rapidly, and may attain a large size in the course of a few months; it accompanies the larynx in its movements, but shortly limits their extent by attaching the organ to the surrounding parts; it occasions great difficulty of deglutition and respiration from an early period;--hoarseness, cough, and spasmodic action of the muscles of the larynx and pharynx come on and increase in their intensity,—the distress and anxiety of the patient, his sallow complexion and emaciation, marking him out as the subject of a steadily advancing and destructive malady.

In *medullary cancer of the thyroid* the surface of the tumour may be even and tense, or indistinct fluctuation may be perceived, the other characters, depending on on the steady infiltration of the surrounding textures, distinguishing the disease from other tumours of the same part.

*Enchondromatous tumours* are to be recognized by their great density, the slowness of their growth, and the absence of any signs of the extension of the affection to the surrounding parts, and of general evidence of the existence of malignant disease.

The diagnosis of *tumours of the neck, not connected with the thyroid body,* is to be established by reference to the general characters which distinguish them in other situations, every particular of their history and mode of growth being carefully ascertained as essential points, and sufficient care being exercised lest the presence of a quantity of coagulable fluid, in the interior of a cancerous tumour, lead to the belief that it is of a cystic character.

I shall complete this paper by a short consideration of the important question,—*Whether or not fibre is an essential element in the structure of cancer?*

Much difference of opinion still exists as to what are the parts of a cancerous growth which are essential to it. Professor Bennett states that fibres, cells, and a viscous fluid, are the three essential elements of a cancerous formation. Lebert regards the cancer-cell as the only distinctive, constant, and essential element, the predominance of one or other of the accidental and secondary elements determining the varieties of form and appearance; yet he regards the fibres as next in point of importance and frequency, and speaks of them in encephaloma as pale, fine, and in small quantity. Müller says that the fibres of encephaloma are indistinct, and that the fusiform cells are arrested in their development into fibres;—whilst Vogel states, that in encephaloma fibrous structures are wholly absent. As has been before remarked, it is excessively difficult to state whether the fibres which are found in many tumours are really cancerous, or whether they belong to the proper structure of the organ in which the tumour has been developed; and, consequently, careful examinations of cancerous formations in organs which contain no fibrous tissue in their healthy state, become of extreme importance in leading to a true determination of the mode of development and actual position of the fibrous element in cancer.

From the examination of cancer of the brain, and of numerous cases of encephaloma, I am led to believe that fibres are by no means invariably to be found in such growths, and that their fibrous element is accessary and non-essential. If this be so, the existence of fibrous tissue in most cancerous structures remains to be accounted for in either of two ways,—viz., by hypertrophy of the normal fibrous tissue of the part, or by a new development of fibre from the recently diffused blastema,—a development commenced and completed under the influence of the determining energy exerted by the fibrous tissue of the part itself, agreeably to the law of analogous formations. Presuming that the fibrous element of cancer is developed in either of the methods just indicated, its absence in cancer of the brain is readily accounted for, as in that organ there is no fibrous tissue to acquire an unusual development, or to determine the formation of new tissue of its own kind from cells. *If* proper *cancer cells,* of a fusiform shape, *ever become trans-*

*formed into fibres,* their presence in cancer of the brain, unaccompanied by the fibrous element, may be owing to a deficiency of the stimulus necessary to ensure such development, and may possibly be dependent on the absence of fibres in the original and healthy texture of the organ.—*Monthly Journal of Med. Science, Dec.,* 1850, *p.* 523.

## 143.—ON CORPULENCE; OR EXCESS OF FAT IN THE HUMAN BODY.

By Dr. Thomas King Chambers.

Obesity, or *polysarcia,* is a true hypertrophy of the tela adiposa, an increased growth, without change in chemical or anatomical characters. in this it is in marked contrast with another condition, the *fatty degeneration,* which is rather an atrophy than a hypertrophy, the tissues of the affected organs being replaced by a substance lower in the scale of vitality. The microscopical characters of the fat in these two cases clearly indicate the fundamental distinctions. In obesity the fat is *vesicular*; in the fatty degeneration it is *molecular*. Each vesicle, in natural fat, is a perfect organ in itself, having a distinct wall, and being supplied on its exterior by capillary blood-vessels. The vesicles are round or oblong, but assume a polyhedral form from compression. "Mr. Paget has pointed out an interesting peculiarity of the fat vesicles, namely, that their contents, though fluid, do not pass by exosmosis through the membranous walls. This he ingeniously explains, by noticing that the membrane is moistened continually by the same fluid which all tissues imbibe from the blood-vessels—that is, water containing albumen and salts in solution. With this the oil has no disposition to mix, and thus each drop is imprisoned in a vesicle of impermeable tissue. During life, the oil-cells, by the attraction of their walls, constantly imbibe this watery fluid from the capillary vessels that surround them; and after death, if fat be kept in or near water, no oil transudes till the cells decompose. They retain their contents, on the same principle that an oil-skin bag holds water; the one is rendered water-proof by oil, and the other oil-proof by water. The fluid thus enclosed in an impermeable sac, being incompressible, is highly elastic, and diffuses pressure equally in all directions. It is similar, in fact, in its construction, to a water pillow; and is similar in its use too, for, distributed about the sole of the foot and the nates, it enables us to stand or sit with easy comfort, without the fear of squeezing out the oil from the tissue. The membrane is supplied with this necessary watery fluid by the capillary blood-vessels, which ramify in great abundance among the vesicles, forming loops around each, and detaining the blood as long as possible in their vicinity. When the vesicles increase in number, these blood-vessels increase in number also, and appear capable of almost indefinite multiplication. How great must be the effect of this upon the circulation! If, for instance, a man of five feet two inches, whose healthy weight would be eight stones, increases to twenty-eight, no less than twenty stones of additional fat have to be supplied with capillaries and those capillaries have to be supplied with blood by vessels constructed to circulate but one third of the quantity. How wonderful must be the power of adaptation which can render such a change consistent with life at all! How little cause for surprise, if that life is short, and burdened with innumerable ills!"

The uses of fat appear to be to act as padding, filling up angular cavities, and facilitating motion, to defend from external cold, and to form a store-house of carbon for the use of the lungs. It is derived directly from oleaginous articles of food, and indirectly from some other proximate principles, as the saccharine. But, for its formation, it is necessary that the materials be digested in a greater quantity than is sufficient to supply carbon to the respiration. There has been much difference of opinion regarding the means by which the oily matters are taken up by the lacteals; but experiments performed by Dr. Chambers on rabbits seem to set the matter at rest, and to show that the pancreatic juice is the agent.

The desire for oleaginous food is not equally strong at all periods of life; children commonly dislike it; the taste appears to be acquired about the time of puberty, and in a more marked degree in females.

A certain amount of fat is necessary for the perfect well-being of the individual, while an excess is injurious. It is, therefore, of some moment to determine the best way of ascertaining this point. Dr. Chambers believes that the balance is the best test, seeing that its indications are chiefly modified by the quantity of fat, the bones and muscles having comparatively little influence. This is illustrated by several examples, for which we must refer to the original work, as well as for the tables showing the average weights in healthy subjects, in obese persons, and in phthisical patients.

Corpulence is in a very marked degree hereditary. From the tables constructed by Dr. Chambers, it appears, that the tendency was referable to their ancestors in twenty out of the thirty-eight cases quoted; in five more, it was to be seen in their collateral relations; in six only was it absent, the rest being doubtful or unknown. In insanity, 13 per cent. is the full proportion; in consumption, according to the first report of the Brompton hospital, 24½ per cent. Of the *exciting causes*, an acute attack of illness appears to be the most common. Accidental surgical injuries also frequently produce it; and so, too, good living, with moderate exercise and an easy mind.

"The most interesting way of illustrating the pathology of obesity, will be to detail the causes of death in a considerable number of cases of this affection. I have put together sixty-nine, of which the *post mortem* records are thoroughly to be trusted, sixty-seven having been examined at St. George's Hospital, and two by Dr. Shearman, of Rotherham, a gentleman of well-known accuracy and research.

CAUSES OF DEATH IN SIXTY-NINE CORPULENT PERSONS.

*Medical Cases.*

| | | | |
|---|---|---|---|
| Dropsy ... ... ... ... ... | 13 | Aneurism, 1; malignant disease, 1; fever, 1; rupture of stomach, 1; polypus uteri, 1 ... ... | 5 |
| Apoplectic Coma ... ... ... | 11 | | |
| Pneumonia ... ... ... ... | 5 | | |
| Pleurisy (acute, 2; chronic, 1) | 3 | Erysipelas of face ... ... ... | 1 |
| Fainting (fatty atrophy of heart) | 1 | | |

### *Surgical Cases.*

| | |
|---|---|
| Peritonitis after hernia | 8 |
| Erysipelas after ulcers and slight wounds | 3 |
| Gangrena senilis | 2 |
| Diffuse cellular inflammation | 2 |
| Secondary abscess | 3 |
| Nephritis after lithotripsy | 1 |
| Diseased prostate | 1 |
| Accidents | 10 |

"The heart was examined in fifty-seven of these patients. In seven it was found healthy—viz., in four who died from accidents, in one case of rupture of the stomach, one of hernia, and one of nephritis. In the latter case, the principal local collection of fat was about the kidneys, where the amount usually found was greatly augmented. In fifty of the fifty-seven cases where the heart was examined, it was found diseased. Of the fifty diseased hearts,

5 were hypertrophied and not dilated,
8 hypertrophied and dilated
26 dilated only;
11 atrophied.

In sixteen of these, there was an increased amount of vesicular fat about the heart—viz., In 13 of those which were dilated;
In 2 of those which were atrophied;
In 1 of those hypertrophied and dilated.

"In fourteen instances, the kidneys were also affected with chronic degeneration, which, in all those, where an opportunity occurred of forming an opinion, seemed to be consecutive on the cardiac disease.

"A cursory glance over the facts recorded in these lists will be sufficient to show what a great influence over life the disorders of the circulating system have had. In the medical cases, the two classes which make up the bulk of the whole, may be referred entirely to this source; and in the surgical cases, nearly all are of a nature to be much aggravated by an ill-balanced distribution of blood.

"The change which most commonly affects the heart is dilatation, probably dependent on the greatly increased quantity of capillaries distributed throughout the body, and the consequent increase in the amount and pressure of the circulating fluid upon the central organ. The hypertrophy, which sometimes ensues, is not unlikely to be an effort of nature to supply force in proportion to the increased demand.

"In eleven cases out of the forty-nine, atrophy of the heart was observed, that is, diminution in the thickness of the walls, without any external augmentation of size; and in such of these cases as were submitted to the test of microscopic examination, a deposition of *molecular* fat, destruction of the nuclei, and other evidences of degenerated muscle were found.

"We must be careful to distinguish this fatty atrophy, or degeneration, from deposition of *vesicular* fat; the first arises from deficient nutrition, the second is due to excess. One is a retrogression from a more highly endowed tissue to one less distinguished by its importance and offices; the other is an increased growth. It is true, they may be coincident, as in the instances before us of atrophied hearts in obese people; yea, they may exist together in the same organ, as in two of these cases, where there was much fat at the base of the great vessels and degenerated muscle at the same time. But still they are contrasted conditions, hypertrophy and atrophy of different tissues.

"It still remains to be explained, why these two opposite states are so often associated together; why degenerated muscle is more common in fat than in thin people, as would appear to be the case, from a paper presented by Dr. Quain, a short time back, to the Medico-Chirurgical Society."

In regard to treatment, Dr. Chambers observes: "The first thing indicated in all cases is to cut off, as far as possible, the supply of materials. Fat, oil, butter, should be rigorously interdicted in the diet table. But all eatables should contain some portion of oleaginous matter, and especially those most convenient to advise the use of for a lengthened period. And, as we observed at the former part of our review of the light which chemistry has thrown on the subject, almost all are capable of a transformation into fat, when a small quantity of this substance is previously present. It is desirable, therefore, that the mass of food should lie in the stomach as short a time as possible, in order that at least a fatty fermentation may not be set up in it. Very light meals should be taken, at times most favourable to rapid digestion, and should consist of substances easy of solution and assimilation. To this end, the time of the meals should be fixed for an early hour in the day, before exertion has rendered the power of the entrails languid and weak. Breakfast should consist of dry toast, or, what is still better, sea biscuit, and if much active exercise is intended, a small piece of lean meat. Dinner at one, on meat with the fat cut off, stale bread or biscuit, and some plain boiled macaroni, or biscuit pudding, by way of second course. . . . Liquids should be taken, not at the meal, but half an hour after, so as not to impede the action of the gastric juice upon the mass. Here should end the solid feeding for the day; no second dinner or supper should follow, nor, indeed, any more meals be taken sitting down. A piece of biscuit and a glass of water can be taken standing up, if faintness is experienced; a cup of gruel, or a roast apple before going to bed. . . It is often advisable to add a small allowance of malt liquor at dinner, as otherwise the craving of the appetite is less easily appeased." Among medicines, the *liquor potassæ* stands preeminent. It should be given freely in milk, beginning with half a drachm, and raising the dose to a drachm or a drachm and a half, three times a day.—*London Journal of Medicine, Dec.,* 1850, *p.* 1166.

---

144.—*On the Best Preparation of Arsenic for Internal Administration, and on the Chemical Composition of Fowler's Solution.* By Lloyd Bullock, Esq.—[It is stated by many who employ the officinal preparation of arsenic that it is uncertain in its action, a small dose in some cases acting with violence, and in others a larger dose producing little effect. Though this is rather referable to peculiarities of constitution in the patient than differences of preparation of the drug. Nevertheless, the present state of chemistry demands in all cases precision—rejection of all processes vague in themselves or admitting the possibility of failure to obtain the intended result.]

In the instance of the solution of a metallic salt, the maintenance of a certain standard strength being always the desired object, it is certainly always desirable, if possible, first to obtain the salt in a crystalline form. and then, being assured of its purity, both by its chemical and physical characters, to dissolve it in an exact amount in the necessary proportion of menstruum. On this principle I have for several years recommended the employment of the arseniate of soda, a salt which has all the required characters of great solubility, definite form, and the additional pharmaceutic advantage of being readily made into pills, in such a manner as to ensure every pill containing any given fraction of a grain with perfect accuracy. Moreover, it may be kept in a crystalline form, and dissolved readily, as it is required. Of the arseniate of soda I have received reports from a great many practitioners, invariably favourable as to its therapeutic effects.

The use of arseniate of soda in medicine is nothing new. It is the basis of Pearson's solution, which consisted of one grain of arseniate of soda to one ounce of water. What the reasons may be which led to this salt having been hitherto omitted from the Pharmacopœia, I am unaware.

About twelve months ago, my attention was particularly directed to the liquor arsenicalis by a physician, who was dissatisfied with its effect, and, at his suggestion, I was induced to look more closely into this preparation. The directions of the Pharmacopœia for preparing liq. arsenicalis are as follow :—

"Take of arsenious acid, broken into small pieces, carbonate of potassa, each eighty grains; compound tincture of lavender, five fluid drachms; distilled water, a pint. Boil the arsenious acid and carbonate of potassa with half a pint of the water in a glass vessel until they are dissolved. Add the compound tincture of lavender to the cooled liquor. Lastly, add besides, of distilled water, as much as may be sufficient, that it may accurately fill a pint measure."

I made the following experiment:—

1. Taking 80 grains of arsenious acid in coarse powder, 80 grains of carbonate of potassa, P.L., and 10 ounces of water, I found a perfect solution effected on heating, to 212°, with the evolution of only a trace of carbonic acid.

2. The solution was then boiled until it ceased to give off carbonic acid; it required about twenty hours, an equivalent of the carbonate if potassa was decomposed, forming arsenite of potassa, corresponding with the following formula :—

$$\begin{array}{ccccccc} As\,O_3 & & K\,O, C\,O_2, 1\tfrac{1}{2}\,H\,O & & As\,O_3 & & K\,O, C\,O_2, 1\tfrac{1}{2}\,H\,O \\ 99 & : & 83.5 & :: & 80 & :: & 67.5 \end{array}$$

It would appear, therefore, that the liquor arsenicalis of the Pharmacopœia is a solution of arsenious acid in carbonate of potassa, with a minute quantity of arsenite of potassa. On looking through all the dispensatories, and commentaries on the Pharmacopœia, I was surprised to find no allusion to this fact. Soubeiran, however, notices it, but no other French writer on pharmacy subsequent to Soubeiran, that I am aware of.

If it be desirable to give arsenious acid with carbonate of potassa, the following process will give a uniform preparation:—Take eighty grains of arsenious acid in coarse powder; eighty grains of carbonate of potassa, P.L.; compound tincture of lavender, five fluid drachms; distilled water sufficient to make up twenty ounces. Boil the arsenious acid in fifteen ounces of water until dissolved, remove it from the fire, allow it to cool a few minutes, and add the carbonate of potassa dissolved in four ounces of cold water; when the temperature of the mixture is reduced to 60°, add the compound tincture of lavender; lastly, make up exactly to twenty ounces with distilled water.

It is probable that many gentlemen may wish to prescribe a true arsenite of potassa, a salt they supposed they were exhibiting in the liq. arsenicalis of the Pharmacopœia. To distinguish this salt from Fowler's solution, it may be called liq. potassæ arsenitis neutralis, and instead of sp. lavand. co., a small quantity of a distilled spirit could be used. The liquor potassæ arsenitis neutralis may be prepared by taking 80 grains of arsenious, and 67.5 grains of carbonate of potassa, P.L., or 81.6 grains of crystallized bicarbonate of potassa. Boil in ten ounces of water until no more carbonic acid is evolved; when cold, make up to exactly twenty ounces, with distilled water, and if thought desirable, a small quantity of a distilled spirit.

There appears to be a variety of opinions as to the best form of giving arsenic. Mr. Hume and others, vide 'London Medical and Physical Journal,' vol. xxiv., would prefer binarseniate of potassa, but I find that this compound, which was admitted into the former edition of the Dublin Pharmacopœia, has been recently omitted.

The binarseniate of potassa is a beautiful salt easily prepared; keeps well, and from its fine crystalline form its purity is readily ascertained. It would be well if some satisfactory reasons were given for the rejection of this salt.

M. Boudin considers a simple solution of arsenious acid in distilled water as the best; whilst Bieto prefers arseniate of ammonia. There is also a solution of arsenic in some repute, known as De Valangin's solution of solvent mineral, which is a solution of arsenious acid in hydrochloric acid.

It appears to me that the weight of testimony is in favour of arseniate of soda. M. Cazenave speaks highly of it; and upon the whole I should say it is probably milder in its action than other forms of arsenic, and, as far as I know, is devoid of objection.

The best method of administering the arseniate of soda is in the form of pills, made up with crumb of bread, or some inert powder.

In conclusion, I think I cannot do better than quote Dr. Powell, who, writing on arsenic, observes, "when the dose is small, and the effect so powerful, the most minute attention to its proportion and preparation becomes necessary."—*Lancet, Dec.* 21, 1850, *p.* 674.

## 145.—ON THE USE OF ARSENIC IN LUPUS.

### By Thomas Hunt, Esq.

There are two very distinct diseases to which the term *lupus* has been applied by the French writers. One of them (*lupus non exedens*) is a cutaneous disease which rarely ulcerates, and its ravages are generally confined to the dermis. The other (*lupus exedens*) is a disease characterised by a very slow ulcerative process of the phagedenic kind, which begins in the skin, eating away not only the dermis but subcutaneous tissues down to the very bone. It commonly commences on the nose, and has been known to destroy every feature. For both of these diseases (which have always been pronounced incurable by all medical writers), I have for nearly fourteen years been trying the internal administration of arsenic. Both diseases are very rare, and during the above-mentioned period not more than twenty cases have fallen under my immediate observation. Some of the cases of lupus exedens have already been published, and the whole of them are full of interest and instruction. More recently several cases have been reported to me as having been restored by the use of arsenic, and one or two have recovered by the use of other means. It is gratifying to reflect, that this horrible disease, which has been known to be devouring and mutilating the features of a handsome female for upwards of thirty years together, setting all treatment at defiance, and thus proclaiming the helplessness of our art, should at length be placed on the list of curable diseases.

Arsenic has been used as an external application in lupus exedens for many years, with temporary benefit, which has been attributed to its escharotic properties; a more healthy surface having usually been apparent on the separation of the eschar. This improvement having always proved but of short duration, I began to suspect that it resulted rather from the absorption of the arsenic into the system than from any local influence. Accordingly, I determined on a lengthened trial of its internal exhibition. This experiment was attended with the most happy results. A very short outline of a few cases will convey to the reader a general view of the effects of this powerful agent in lupus exedens.

Case 15.—*Lupus Exedens.*—In this case the disease had existed for nine years. The patient took arsenic regularly for three years, when the diseased parts were entirely healed. A relapse occurred in seven months. The arsenic was then resumed, and continued for two years, when the disease again disappeared and has shown no disposition to return for the last eight years. The lower half of the nose, the septum, the four upper incisors, and a portion of the upper lip have been sacrificed by the destructive process. The general health is uninjured. Preparation—liquor potassæ arsenitis; dose—five minims, gradually reduced to two, thrice a day.

Case 16.—*Lupus Exedens.*—The disease had existed *twenty-four* years, and was arrested by arsenic in *two months;* after which period the skin remained irritable, but no ulceration appeared. The patient has now been free from lupus for four years, having taken arsenic occasionally for three years. The tip and septum of the nose, and the greater part of both alæ, are destroyed. The upper lip and lower eyelid of the right eye are scarred. The health of this patient is not only uninjured by the arsenic, but is very materially improved. The same preparation was used as in the last case. This extraordinary case is well known to Professor J. H. Green, Dr. Blundell, and other medical men. The patient is still subject to occasional attacks of impetigo, and the skin of the nose is somewhat irritable, but it is gradually recovering as her health improves.

Case 17.—*Lupus Exedens.*—The disease in this case had existed six years. The arsenical course was commenced at Midsummer. By the following Christmas the nose was reported as "nearly well," and the health and appetite much improved. The right ala of the nose was nearly destroyed, and the bone had become painful. Fowler's solution was the preparation used in the usual doses. This lady resides in the north of England, and I have not heard of her lately.

Case 18.—*Lupus Exedens.*—This was a recent case. The disease had existed only two months, and was not finally cured until the arsenic had been taken for nearly five months. The disease attacked the right ala of the nose, of which a small portion was destroyed. The general health was much improved by the arsenic.

These cases will suffice to demonstrate beyond doubt or cavil, that there is a fair prospect of recovery in cases of lupus exedens, under the internal administration of arsenic.

The success which has attended the use of arsenic in lupus non exedens is by no means so well marked. Out of seven cases in which it has been tried, not one has been entirely cured; but three have been benefited, three are under treatment, and in one case no apparent improvement was manifested.—*Med. Times, Feb.* 1, 1851, *p.* 120.

---

146.—*On the Exploring Needle and Microscope as means of Diagnosis.*—By Professor Syme.—[In a lecture on clinical surgery, Professor Syme remarks upon this subject:]

I must beg to warn you against placing confidence in the use of certain means which have been proposed as assistants to diagnosis, but are too frequently employed as substitutes for the careful investigations most conducive to the attainment of this object. I allude more especially to the exploring needle and microscope, which are at present much in fashion for facilitating the recognition of morbid growths and deposits. It may seem, at first sight, that with the exception of the risk of exciting diseased action, which must always attend the thrusting of a foreign body through the living textures, no harm, at all events, can accrue from the information obtained in this way; but when the subject is more fully considered, I trust it will appear to you in a different view. For, in the first place, it must be admitted, that reliance upon such assistance encourages a lax and imperfect exercise of the other means which we possess for discovering the truth; and, secondly, it cannot be denied that reliance may be placed with much more safety upon the latter than upon the former alone.

It is upon such grounds that I have always had a great distrust of the exploring needle. But the microscope seems to me still more apt to mislead; and I am glad to take this opportunity of protesting against the importance which at present is most unduly attributed to it, as a means of distinguishing morbid growths. After making this statement, it would be useless to quote any experience of my own upon the subject, as the results would be attributed to prejudice or want of practice; and I will, therefore, select from the numerous mistakes that crowd into my memory, one that lately happened to a surgeon who has written strongly in favour of microscopical examination, who occupies a prominent place in his profession, and who was led to investigate the particular case concerned with peculiar care. The patient suffered from a tumour, which threatened to prove fatal, and of which a small portion being subjected to the microscope, appeared to present the characters of a malignant deposition. Biassed no doubt by this impression, the surgeon finally resolved that the case did not admit of remedy. The patient then applied to me, when, paying no regard to the microscopical texture of the tumour, I carefully considered its situation, connections, and history,—with the conclusion, that it was not connected with any unhealthy condition of the system, and that it might therefore be removed with every prospect of permanent relief. Acting under this persuasion, I performed the operation which was requisite, with the most satisfactory result. In short, gentlemen, I would say that the assistance which exploring needles and microscopes afford in the practice of surgery, may be compared to that which a lame man derives from the use of crutches. If he cannot walk without their support, he must of course avail himself of it; but need never expect to walk so well as one who is independent of such artificial aid. It is far from my intention to deny that the microscope may be of service in promoting the minute researches of anatomy, physiology, and pathology. But I maintain that it can never supply the want of that knowledge of obvious structure and sensible action in health as well as disease, which is essential for the discrimination of morbid textures with a view to their remedy.—*Monthly Journal of Med. Science, Jan.* 1851, *p.* 81.

---

147.—*On the Treatment of Tetanus.*—By PROFESSOR MILLER.—[Speaking of the value of Cannabis Indica in this disease, Professor Miller says,]

I can now record three fortunate cases under its use; all traumatic. A girl, eleven years of age, sustained comminuted fracture of the finger. Tetanus occured, the finger was amputated; and the treatment consisted of purgatives, cold to the spine, Indian hemp—pushed to narcotism—nourishment, and seclusion. The amendment was gradual and complete. A boy, about the same age, had simple fracture of the thigh, with compound and comminuted fracture of the great toe. The treatment and result were the same. Another boy, rather older, had compound fracture of the bones of the arm. The treatment again resulted in cure. And in these cases I was and am inclined to award to the cannabis the greater part of the therapeutic agency. In other examples of the disease, I have seen it fail to cure, but never to relieve. It is given in doses of three grains of the extract, or thirty drops of the tincture; repeated every half hour, hour, or two hours; the object being to produce and maintain narcotism. There is a very marked tolerance of the remedy.—*Brit. and For. Medico-Chirurg. Review, Jan.* 1851, *p.* 89.

---

148.—*On the Treatment of Lead Colic.*—By J. L. Brachet, Paris. —[In his chapter on the treatment of this disease, M. Brachet passes in review the efficacy of purgatives. anodynes, antiphlogistics. and specifics. At the hospital of La Charité the most violent system of purgation was adopted, such as would not be tolerated at the present day. M. Brachet employs the croton-oil, chiefly giving it in doses of one and a half to two drops, and repeating it for from four to eight days. Speaking of anodynes M. Brachet regards opium as unfit for exclusive treatment, but as a powerful auxiliary; of the antiphlogistic treatment he says little, save for the removal of accidental complications.]

Among the *specific remedies*, many of a chemical character have been suggested, with the view of neutralising the lead and eliminating it from the economy; but the chemists, supposing its existence proved, have not always advocated the same means, some desiring to effect soluble, and others insoluble compounds, with the poisonous substance. Alkalis, oxygen, sulphur, hydrosulphurets, sulphuric acid, mercury, antimony, and a great many other substances, have been in turn recommended and abandoned. The last of this class was brought forward by M. Melsens, viz., iodide of potassium. Supposing this substance to prove as efficacious in the treatment of chronic lead-poisoning, as he states it to be, it it does not follow that the chemical explanation of its efficacy which he offers should be the true one, as its great power in modifying the morbid actions of the economy is familiarly known. It is to some such modification of the pathological condition, that the great efficacy of *alum* must be due; and in this sense it may be regarded as a specific, and measured by its utility, as the most valuable specific. Notwithstanding that we have enumerated the various remedies separately, it is usually upon a combination of two or more of them that most authors have relied.

M. Brachet likewise employs a combination of remedies, but it is to *alum* he looks as his sheet-anchor. During the first eight years of his practice, he employed the La Charité treatment, and with complete success as far as a cure was concerned. He more than once reflected, however, upon the probable ill effects of so violent a system of purgation. and was displeased at the tardiness of the cure, which never occurred before six and frequently not until twelve days. When the physiological system of medicine was in the ascendant, he had recourse to antiphlogistic treatment, but with such indifferent success that he was obliged to fall back again upon the empirical use of purgatives. Next, more than forty cases were treated by leeching the abdomen, and full opiates. The patients were relieved in a few hours, or at the farthest in two or three days, and he believed he had attained his object. In other cases, however, the cure was very slow, and in others again not permanent, although purgatives succeeded to the narcotics. After further attempts he had recourse to *alum*, as recommended by Gendrin, and he was able in 1838 to report highly in its favour; and since that period he has constantly employed it, without accident or disappointment occurring. He prescribes from one and a half to two drachms in a ptisan, to be taken during the day, adding to this forty or fifty drops of laudanum, and if the bowels do not act by the third day, giving a mild aperient: and the case is complete. More than 150 patients have been thus treated with complete success, the alum being continued a day or two after the symptoms have disappeared. This treatment, realizing the *citò, tutò, and jucundè* of Celsus, after so long a trial of others less efficacious, he now recommends as one not likely to be improved upon.—*Brit. and For. Medico-Chirurg. Review, Jan.* 1851, *p.* 45.

---

149.—*On the Protection of Granulating Surfaces.* By PROFESSOR MILLER.—[Professor Miller protects raw granulating surfaces "from the influence of the atmosphere, by imitating the incrustation of nature." This he does by using "a thick semifluid aqueous solution of gum tragacanth." This is]

Laid gently and uniformly on the raw surface, so as completely to protect it; and if at any portion the envelope threaten to become imperfect, the attendant is directed to effect an immediate repair. The application is productive of no irritation; and, being translucent, permits a complete surveillance of the part. Atmospheric influence is completely excluded; and the raw surface would seem to be placed in circumstances somewhat analogous to its normal state, as if still invested by the integument. Should inflammation ensue, no harm has been done; on the contrary, action is likely to prove less intense than it otherwise would have been; the gum is loosened and washed away by the purulent secretion: and water-dressing may then be used, as in ordinary circumstances.—*Brit. and For. Medico-Chirurg. Review, Jan.*, 1851, *p.* 89.

---

## 150.—ON THE DISEASES OF, AND OPERATIONS ON, THE THYROID GLAND.

By M. LUIGI PORTA, Professor of Clinical Surgery, Pavia.

[Dr. Handfield Jones, the most recent writer on the minute anatomy of the thyroid gland, describes its structure as follows:]

"A thin slice of the thyroid, examined under a low power of the microscope, displays its condition very perfectly and readily. It is seen to be made up of closed vesicles, aggregated together in groups of various sizes by the fibrous expansions just described. The form of these vesicles is primarily spherical; but many, perhaps the majority, are more or less affected by mutual pressure, being triangular, elongated, ovoid, or oblong. They are all perfectly closed, the wall being formed by a homogeneous limitary membrane, which is easily traced all round, and can never be seen passing off into a neck, or blending with the envelope of an adjacent vesicle. Where a number of vesicles lie closely crowded together, the homogeneous envelopes are of course in contact, or separated only by the interjacent vascular plexus; but those forming the surface of a group are invested by a thin expansion of fibrous tissue derived from the general capsule. The diameter of the vesicles of the human thyroid I have found to range from 1-2000th of an inch to 1-85th; in the bullock, from 1-2000th of an inch to 1-48th, the greater number averaging about 1-60th of an inch in this animal as well as in the pig. . . . The vesicles are lined internally by an epithelial stratum, consisting usually of nuclei set together in a scanty basis substance, which is either feebly granular, or of a somewhat oily aspect. The nuclei are at once recognised by the practised eye, as exactly resembling those of the true glands. Their nucleoli are not always visible, and vary very much in number—from one to four or five. The nuclei are, however, always vesicular, bounded by a strongly marked envelope, and have a mean diameter of 1-3000th of an inch. It has been observed by Mr. Simon, and I have occasionally had the opportunity of confirming the remark, that the nuclei, instead of remaining in their primitive condition, proceed to the further stage of cell-development; this he has noticed both in man and the lower animals."

[As to the composition of its fluid contents, it appears that about 28 or 29 per cent. of solid matter exists in the secretion, nearly the whole of which is albuminous, though not as ordinary albumen. A small quantity of gelatine has been found in that of the ox, but not in the human subject. Crystals of triple phosphate and oxalate of lime occur in the cavities; but no urea or lithic acid, nor, in fact, any special or organic compound can be detected.

In describing the post mortem appearances of the gland after inflammation, Dr. Handfield Jones remarks:]

"I have more than once found the veins issuing from the gland, and passing its inferior margin, implicated in the inflammation and full of pus, or obstructed by a clot. In one case the coagulum completely obliterated all the principal venous trunks; even the lymphatic vessels, in cases of thyroiditis, often appear inflamed, varicose, tinged with rosy lymph, or puriform matter, and with opaque parietes. The glands to which they pass are swollen, red, sanguineous, and buried in masses of plastic lymph. The ramifications of the thyroid nerves are interlaced on the surface of the injected capillary vessels."

[The medical and surgical modes of treatment of simple organic productions of the thyroid gland is next considered. Of the first we must first ascertain the cause, and, if possible, avoid or remove it. The second is to resolve the tumour. As a local application, the author prefers the protiodide of mercury. Four or five grains, with a scruple of lard, are rubbed in at each friction; or a saturated solution of iodide of potassium in water mixed with lard may be used. From ten to twenty of these frictions will be quite sufficient to judge of the effect of the application. The absorption by the cuticle is perfect. Professor Porta generally now gives the iodide of potassium, commencing with eight grains daily, and increasing the dose to a scruple, half a drachm, or even a drachm daily. It is to be preferred to the tincture of iodine. Speaking of the inhalation of the fumes of iodine from a bladder, he says,]

"After inhaling the vapour of iodine for one minute, not so much as a grain of the metal being lost, my urine has given forth the odour of iodine for four or five days. After a single dose taken into the stomach, every appearance is lost after five or six hours. When a large dose is given at once, from five grains to a drachm of the iodine, or fifty or sixty drops of the tincture, or when the medicine is continued for several days, the urine generally, after suspension of the remedy, continues to give a violet precipitate, with starch and nitric acid, from four or five to eight or ten days. The minimum duration is three or four hours: the maximum ten, and in some cases twelve days. But sometimes even a small dose of some grains of the iodide continues to show itself in the urine for several days. I have several times taken a single grain of iodide in one or two ounces of water, and in a quarter of an hour I could procure a copious violet deposit from the urine, which was the case for five or six hours, as if I had taken a large dose. By the endermic method, or by inunction, the iodine does not appear in the urine for fifteen or twenty hours, or until the next day, and sometimes is not found. Indeed, we never find a precipitate so copious and so deeply coloured, as when the remedy, even in small doses, is introduced into the stomach, or into the cavities of serous membranes. But its presence in the urine is for a longer period. By inhalation the passage to the urine is made more quickly, but the precipitate obtained from the urine is slight. We may say, then, that the passage from the skin to the urine is slower and more sparing, but the resolvent effect on the tumour is more prompt and decided, probably because the iodine remains longer in the body of the patient."

The author also made a number of experiments in order to determine if remedies applied by the natural channels were found in diseased parts of the body. He used soluble salts of various metals, as iodide of potassium, chloride of barium, sulphate of iron, acetate of lead, and tartrate of antimony, upon a series of patients affected with ascites, hydrocele, hygroma, wounds, fistulæ, abscesses, &c., administering the salts externally and internally, and then collecting the various fluids for analysis by Dr. de Cattanei, professor of chemistry in the University. The result was indisputable proof of the material presence of the remedy administered, in the diseased parts.

The result of the administration of iodine in the treatment of bronchocele, may be total resolution of the tumour, partial resolution, or absolute inutility. Of 100 cases thus treated by the author, in one half, the tumour remained totally or in part, and in several of the other cases, the good effect was but temporary. This may be partly owing to the habits of the patient, his profession, or residence, being the same that led to the first increase of the gland. Thus, the resolvent treatment with the removal of the causes of the disease, is both useful and safe, but only effects a radical cure in a limited number of cases, and these the slightest.

[Extirpation of bronchocele has often been mistaken for mere enlargement of the gland or tumours upon it and external to it. Still eighteen or twenty cases are reported of it during the last century; the result in about half successful. Professor Porta has performed it four times, every time with a fatal result. The danger arises from the hemorrhage, denudation of vessels, and nerves of neck, or trachea and larynx, and diffusive suppuration; or from acute inflammation of the air apparatus; or from nervous exhaustion. The operation of extirpation of the whole, or part of the gland, should be discarded from surgical practice. Small isolated tumours may be easily and safely removed. Small accessory lobes, or isolated appendices, may increase and form tumours, the gland itself remaining normal. Professor Porta has repeatedly excised such tumours with perfect safety and success, a simple linear cicatrix remaining.]

*Method of the Author.*—Convinced of the difficulty and danger of isolating the thyroid gland from the parts surrounding it, Professor Porta has followed a plan which he strongly recommends as safe and efficacious. But we must now let him speak for himself:

"In studying the thyroid gland, my attention has been directed to two facts which have especially interested me. First, that the arteries are inserted at the extremities of each lobe, and that their trunks run towards the superior, inferior, and external margins of the lobes; also that the large branches before penetrating the parenchyma, generally subdivide into a digitation of smaller branches. Thus, although the thyroids are *externally* four considerable arteries, *within* the tissue of the gland, they are merely branches and anastomoses of small calibre, and the embarrassment and danger of severe hemorrhage from injury to large vessels, are scarcely met with when we isolate the external portion of the tumour. In the second place, that the greater number of bronchoceles, as I have fully explained before, do not arise from degeneration of the proper glandular tissue, but from the generation of one or more non-malignant sarcomatous or encysted tumours in the midst of the parenchyma of the gland itself; that these tumours increasing, at last invade the whole space, and reduce the organ to a simple envelope or matrix, on dividing which the new products are exposed, and may be extracted with the greatest ease, injuring only small vessels, and leaving behind a fleshy sac, which, when so evacuated, falls together, and no trace of the tumour remains. . . . . . . The result of these observations was the following reflection:—if the extirpation of the thyroid gland, and even of one lobe of it, is so difficult and dangerous, would it not be better to invert the plan of operation, and evacuate the contents of the tumour, without touching its external portion, without lacerating the surrounding cellular tissue, without injuring the arterial trunks, and without dividing the principal organs of the neck? On these grounds the new plan of operation consists in the simple incision of the external envelopes, and of the anterior surface of the tumour, at some distance from the direction of the arterial trunks; in the evacuation of the tumour by means of separation and extraction, or by excision of the cysts and nodules contained in it, without separation of the outer surface."

We are not told in how many cases the author has performed his operation, but he has selected six as illustrations, stating that in these, and in all his other cases, it succeeded perfectly in removing the tumour, and curing the patient. In only two cases did inflammatory symptoms require prompt antiphlogistic treatment. In one case a coriaceous cyst, and two sarcomatous tumours were removed from the substance of the gland. In another, the gland did not contain new products, but the enlargement was owing to simple hypertrophy. In this patient, the whole fleshy internal part of the tumour was cut away, leaving a sort of surrounding bark, about two lines in thickness. The bleeding was very slight. Cysts and sarcomatous tumours were extracted in all the other cases recorded.

The instruments for this operation are merely scalpels, blunt-hooks, dissection and torsion forceps, scissors, &c. There are three steps in the proceeding. First: division of the integuments of the neck and of the second belly of the omo-hyoid muscle, which is almost always necessary. Secondly: incision of the tumour parallel to the external incision, avoiding the branches of the thyroid arteries, or on division, at once applying the ligature or torsion, which is very easy, because the branches are mere secondary ones, running along and adhering for some distance to the surface of the tumour. Thirdly: by means of the forceps, and the back or handle of the knife, cysts or tumours are removed. When very deep and adherent, they are excised at the base. In case of simple hypertrophy, the whole internal texture of the gland may be removed. Should any arteries be injured in this last step of the operation, torsion should be employed.

Sometimes the wound heals by the first intention, but more frequently it suppurates, and cicatrizes in a few weeks. Occasionally it becomes sacculated, and requires dilatation, or becomes converted into a fistula, which does not close for a considerable time. The great object of after-treatment is to moderate inflammation which may arise, adopting active antiphlogistic measures, should its extension to the chest or head be threatened.

We think this operation well worthy of adoption by British surgeons. Not only is the plan a legitimate deduction from observation of the pathological anatomy of the thyroid gland, and the anatomical disposition of its vessels, but it is accompanied by abundant proof of its safety and success.—*Brit. and For. Medico-Chirurg. Review, Jan.*, 1851, *p.* 96.

151.—*On the Treatment of Itch.* By MM. BAZIN and BOURGUIGNON.—M. Bazin, physician to the St. Louis, in a recent report furnishes an account of the trials he has made of the various means of treating the itch, and of the definite results he has arrived at. He states that at the time of his appointment in 1847, the medium time occupied in treating the disease by the *sulphuro-alkaline ointment* applied to the wrists and insteps, together with sulphureous baths and fumigations, was fourteen days; but that since he has caused the *entire body* to be well rubbed with it (rubbing with extra force those parts the acari specially infest). the patients are dismissed cured in two or three days. Some practitioners who have adopted the plan have erred in its application by leaving some portions of the body unrubbed, or by continuing the friction as long as any itching was perceived. In the first case the disease re-appears; while in the other, by prolonging the frictions beyond the time necessary to destroy the acari, and the vitality of their ova, other eruptions are induced which give rise to great itching. This itching and eruption, occurring after the employment of two complete frictions, furnish an indication to desist instead of to continue; and if they do not then disappear, they may be relieved by tepid baths.

There are cases, however, in which, from the existence of great abundance of pustules, the sulphuro-alkaline ointment would excite too much pain, or in which the patients have such an invincible repugnance to its smell, that we should resort to some other substance; and M. Bazin finds, by numerous trials, that the *lard* and *oil*, which form the base of all antipsoric preparations, if employed in general frictions, either together or separate, will effect a cure, only from four to six, instead of two, frictions being required. Another ointment recently tried, containing *chamomile*, cures in three frictions, soothes the itching instantly, and does not give rise to any secondary eruption. It is composed of equal parts of fresh chamomile, olive oil, and lard.

M. Bourguignon, in his recent prize essay, prefers the *staphysagria* to any other remedy. He adds 300 parts to 500 of lard, stirring the powder into the boiling lard, and keeping up a temperature of 100°, C. for twenty-four hours. After straining, a little essence may be added. Baths should be taken before and during the treatment, and the frictions should be made four times a day, the cure being completed by the fourth day.—*L'Union Médicale*, 1850, Nos. 82, 135. *Journal de Chimie Méd.*, No. xi, p. 671.—*Brit. and For. Medico-Chirurg. Review, Jan.*, 1851, *p.* 258.

---

152.—*Abortive Power of Collodion on Smallpox.*—A case has recently occurred in the wards of M. Aran, at the Bon Secours, in which the good effect of collodion was proved to be as decisive in confluent smallpox as it had been found before in the more simple form. It occurred in the person of an unvaccinated young man, and the collodion was applied to all parts of the face but the lips and ears. Through this transparent covering the progress of the pustules was observed to become at once arrested, while those uncovered continued enlarging. Moreover, a part of the covering having been destroyed without being observed for some hours, the pustules thus exposed immediately began to develope themselves until again arrested by a reapplication. The ears, too, were now covered, and the progress of the pustules stopped there. In a few days the collection peeled off, the skin looking as after erysipelas, but no cicatrices were to be observed, though in other parts of the body they existed in abundance, the eruption having been very confluent.—*Bull. de Thérap.*, vol. xxxix, p. 369.—*Brit. and For. Medico-Chirurg. Review, Jan.*, 1851, *p.* 279.

153.—*On Iodognosis.*—M. Dorvault has published a series of researches on the chemical, therapeutical, and medical properties of iodine. To these, as embracing the entire knowledge of all the properties of that substance, he has given the name of iodognosis.

We here submit an abstract of the medical portion of these researches, from the 'Gazette Médicale de Paris':—

Iodine, as a therapeutic agent, according to M. Dorvault, is unimportant; it is to its combination as *iodides* that its medical value is due. Even when introduced alone into the system its therapeutic effects are to be attributed to its combination with the alkalies which exist in the fluids of the body. Under either circumstances the terms *iodic medication* express the same fact. Iodide of potassium is taken by M. Dorvault as the type of iodides.

*Physiological action of Iodides.*—Iodides belong to that class of therapeutic agents to which M. Dorvault gives the name of *chemico-catalytic*, and form its most striking representative. This proposition is founded on the following facts:—If the animal fluids (blood, lymph, semen, milk), or their proteic elements (albumen, fibrin, casein), be subjected to the action of a solution of iodide of potassium, it will be seen to prevent their coagulation and dissolve them. In producing this effect the salt remains unaltered; it acts, therefore, by virtue of what chemists have called the *catalytic* force. The same may be shown to have obtained when employed in certain pathological cases. The salt may be detected unaltered in the blood or urine, or other secretions.

These facts have been observed by many other investigators, and all have found practically that iodide of potassium promotes secretion, increases the functions of the mucous glands of the alimentary canal, and of the liver, kidneys, skin, pancreas, parotid, &c.

Iodide of potassium is rapidly eliminated from the animal fluids. Dr. Scharlau (of Stettin) found that a patient to whom he gave fifty-three grammes daily, eliminated fifty-one grains by his urine. The five grains lost were accounted for by the elimination of this salt by the saliva, sweat, and tears. Dr. Kramer satisfied himself, from his experiments, that six days sufficed for the complete elimination of this salt after its exhibition during fifty days. The researches of Dr. Marchal, at Vâl de Grace, also prove the rapid passage of iodide of potassium by the urine.

Iodine introduced into the system has been separated by the action of alkalies on the blood.

*Special Action of Iodides.*—The accidental or consecutive action of iodides has often been mistaken for their primary or efficient action. Some physiologists have considered iodine as a stimulant, others as a contra-stimulant. M. Dorvault observes that neither view expresses the exact truth. He admits a certain degree of general constitutional excitement under its employment; also that in severe pains of the bones, and other tumours, the action of iodine is sedative by allaying pain. But in both these cases the stimulation and the sedative action are the consequence, not the cause, of the beneficial therapeutic agency for the remedy.

A third opinion, that iodine is alterative, M. Dorvault regards as nearer the true explanation, but as insufficient in fact, as the medicinal influence of the iodides is often seen after the first dose, therein differing from alteratives. M. Dorvault admits, however, the alterative action of some substances in which iodine exists in minute quantities,—*e. g.*, sponge, cod-liver oil, &c.

M. Dorvault also considers the purely chemical theory of the action of iodine as incorrect; his own opinion being, that the medicinal virtue of the iodides consists in their power of dissolving or further liquefying the *humours* of animal bodies, of separating their constituent or proteic elements, and disposing these to the formation of new products, such as coagula, false membranes, and pathological concretions: that the iodine and the potassium united both concur in the production of this result, by a special and peculiar chemico-physiological power which iodides possess of liquefying the fibrin of the blood without destroying the globules; while potash, ammonia, and other substances, dissolve the blood in all its parts.

*Therapeutic Action of Iodine. The pathological states in which it is employed.*—Goitre, scrofula, syphilis, skin diseases, white swelling, caries of the vertebræ, tabes mesenterica, rickets, phthisis, leucorrhœa, amenorrhœa and chlorosis, cancer, cachexies, dropsy, poisoning, tumours, rheumatism, various chronic diseases, hypertrophy. These are the forms of disease in which, M. Dorvault observes, the administration of iodine is indicated.—*Med. Gazette, Jan.* 10, 1851, *p.* 86.

---

154.—*Cicatrization of an Ulcer promoted by the Electric Moxa.*—Under the care of MR. BRANSBY COOPER.—[The attention of Mr. Cooper was formerly directed to this process for the promotion of the cicatrization of obstinate ulcers by Dr. Hull, of the United States of America. Instead, however, of employing the galvanic battery which is cumbersome, he used one introduced by Dr. Golding Bird, merely using two plates, one of silver and the other of zinc, connected by a copper wire. The case in which the apparatus was used, was an ulcer originally produced from a gun-shot wound situated on the inner side of the right foot and below the ancle. The charge of shot passed obliquely through the soft part of the right instep, and injured the navicular bone. During the treatment several small pieces of bone came away, as often as two or three times a week. The wound never however completely healed, and previous to the application of the electric moxa, it was the size of the hand.]

Carrot poultices were first used, and leeches were from time to time applied round the sore. Warm water dressing was subsequently employed, and the patient took sarsaparilla, but this treatment, continued for about six weeks, proved unavailing as regarded the cicatrization of the ulcer.

At this period Mr. Cooper ordered the electric moxa to be applied; this was done in the following manner:—a small oval piece of blistering plaster, about the size of a crown piece, was placed six inches above the sore. On the following day, a blister having formed, the cuticle was removed, and a plate of zinc, previously cut so as accurately to fit the vesicated surface, was applied on the same. A silver plate was then placed on the original sore, and the two metallic agents connected with a copper wire. This simple apparatus was secured on the limb by means of a few narrow strips of adhesive plaster, the whole being covered with wet lint, and a loose bandage, which latter was kept constantly moist.

On the next day the silver plate was raised for the purpose of examining the sore, and a most decided improvement was observed, the granulations looking more healthy and active. On the second day, however, (the moxa having remained in contact with the limb for forty-eight hours,) there was pain and considerable redness over the whole leg, with enlargement of the inguinal glands. The moxa was therefore removed, the stimulating effects having evidently caused inflammation of the absorbents; yet the original sore had a more healthy appearance, and was evidently decreasing in size. On the fifth day the inflammatory symptoms had considerably subsided, and the sore was improving fast. On the ninth all pain and redness in the leg had disappeared, and a slough separated from the blistered surface to which the zinc plate had been applied. The original ulcer was found much decreased in size, being now no larger than a crown-piece; the granulations assumed a healthy appearance; they rose to the level of the margins, and we recovered and protected towards the centre of the sore by a whitish layer of healthy pus. The borders were becoming flattened and regular, and the gradual extension of the cuticle could be distinguished within them.

The cicatrizing process went on uninterruptedly for several weeks, until the 7th of January, 1851, about four months after admission, when the ulcer was quite healed up, and the patient left the hospital in good health. He was, however, recommended not to bear the whole weight of the body upon the leg for some time to come, and allow the soft parts about the ankle to gain tone before he used them freely.

In reviewing the various facts connected with this case, one is involuntarily led to ask whether the galvanic excitement acted directly on the sore, or indirectly through the vascular disturbance which was brought on by the continuous presence of the moxa for forty-eight hours. That erysipelas has repeatedly been conducive to the disappearance of congestion in internal organs or external parts is well known; nor are there examples wanting of artificial ulcers aiding in the cicatrization of long-standing sores, so that the influence of the electric moxa seems at first sight more likely to have been exerted indirectly than directly. Still it must be conceded that this indirect effect may be of a peculiar nature; further trials will probably settle the point.

Whilst on the subject of the therapeutic uses of galvanism, we should not omit to mention the galvanic poultice lately proposed by M. Récamier, of Paris. It has successfully been used for neuralgic and rheumatic pains, &c., and consists of a piece of cotton wool, containing a layer of minute fragments of zinc, and another of particles of copper; the wool, being properly sewn up, is placed in a bag, one surface of which is of cotton, the other of an air-tight tissue. The permeable surface of the bag is then applied to the skin, and fixed by a roller or a towel; heat is soon developed; the perspiration, retained by the air-tight texture, accumulates; it moistens the bag, and this moisture, which is acid, acts on the zinc and copper placed in the cotton-wool.

Thus the two metals are acted upon by a dilute acid solution, just as they are in the trough or the pile, and a certain amount of electricity is disengaged. When the skin is very dry and unperspirable, a piece of flannel, dipped in a solution of common salt, and then wrung out, is placed between the galvanic bag and the skin. Electricity is given off to such an extent, that it acts like a mustard poultice, though there is no pain, but merely a pricking feeling of warmth. Time will show whether M. Récamier's galvanic poultice acts otherwise than common counter-irritants.—*Lancet, Jan.* 25, 1851, *p.* 91.

155.—*Encysted Tumours Treated by Repeated Injections of Iodine.*—M. BORELLI, of Turin, transmitted a work on this subject, in which he stated his practice. M. Borelli makes a small oblique opening into the cyst, by which he evacuates its contents. He then injects, by means of a syringe, an alcoholic solution of iodine, which he leaves in the cyst, closing the aperture with diachylon or charpie. Pain ensues in the course of two or three minutes, and continues for about twenty-four hours. The inflammation which is excited may usually be allayed by a poultice. The tumour which before was tense and painful becomes softened and diminished in size, while a coloured fluid oozes from the incision. Sometimes, after the first injection, and as soon as the local inflammation has subsided, the cyst becomes detached, and may be extracted from the tumour with the forceps; but usually it is necessary to repeat the injections two or three times before obtaining a complete separation. When the cyst is withdrawn, the radical cure is easily completed.—*Med. Gazette, Dec.* 20, 1850, *p.* 1081.

## 156.—GANGLION TREATED BY THE LANCEOLATE DIRECTOR.

By DR. JOHN MAUND, of Harlow, Essex.

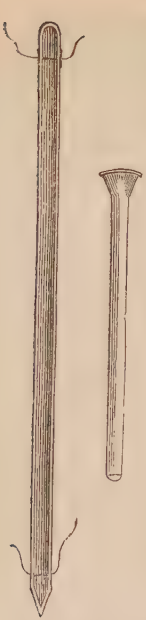
[Dr. Maund remarks that the construction of this instrument is not entirely original; he having seen M. Jules Guerin use a similar one advantageously for the same purpose; this consisted of a grooved needle with a cutting extremity, of which Dr. Maund's seems to be a modification. Speaking of its description, he says,]

I have had the instrument made in various ways, but the most simple, cheap, and portable, and therefore more particularly advantageous for the use of the country surgeon, to whom it is an important object to be able to perform as many operations as possible with the same instrument, and that a simple one, such as is illustrated in the accompanying engraving:—*

The instrument is somewhat similar to the common director,—the

---

* The instrument from which the accompanying engraving was made was manufactured by Mr. J. E. Maddox, surgical instrument maker, 19, University-street, University College.



section of a cylinder, which may be made thicker or thinner, or plated with silver as desired. One extremity has a sharp lanceolate point, with a groove extending along the instrument within an eighth of an inch of the point, at a short distance from which is a hole or eye through the groove from before backwards. Near the opposite end, which is nicely rounded, that it may serve the office of a probe, there is a hole from side to side; this, however, should not interfere with the regularity of the bottom of the groove, or it may destroy the point of a knife when used as a common director. To render the instrument still more complete, a silver canula, about half the length of the instrument, should be accurately fitted to it, which may be drawn on or off either end of the director. One extremity of the canula should be somewhat funnel-shaped, but compressed, to render it more portable. The whole may be added to the usual pocket-case, or may be contained in a very small ivory or ebony case; and it will form a most useful pocket surgical companion.

In my practice, this little instrument has served me as a probe, a director, a trocar and canula, a suture, seton, exploring and aneurism needle, as a general scarifier for the conjunctiva, tonsils, gums, &c.

I have used it with perfect success in hydrocele, both with and without the canula. In one case, where the fluid had been simply evacuated before, and re-accumulated, I first removed the fluid with it, and then employed it to scarify the tunica vaginalis, which occasioned no unusual inconvenience, and effected a radical cure.

For the introduction of small setons, it may most conveniently be used, and from one of the eyes being near its point, the whole of the instrument need not necessarily be passed through the wound. It may be used to evacuate abscesses, either by small openings or subcutaneously.

It has been all sufficient to introduce caustics, &c. (either solid or fluid). into tumours or cavities, where a syringe or more appropriate apparatus could not be procured. Any solid matter may be placed in the groove of the instrument, and covered with the canula until it arrives at the part where its application is desired, when the canula can be withdrawn. Of fluids, too, an all sufficient amount can generally be introduced by having the end of the canula made more funnel-shaped than usual; or thread or cotton may be saturated with a solution, and placed in the groove, and retained in its position by being passed through the eye near the point of the director, until it arrives at its required destination.

Lastly, I may add, I have found it of great service in the dissecting room, in the operation of "tying arteries" supplying all that is required, at least in the superficial vessels. after the first incision is made.

I would not wish it to be understood that I think so simple an instrument can supersede the use of the various contrivances that have been invented for the different purposes I have named; far from it, but merely to state, that I have used it most satisfactorily, and so may others, when a more appropriate instrument could not be obtained; feeling certain, that any portable, simple, instrument,—*a multum in parvo*,—must be of peculiar value to medical men situated in extensive and thinly populated districts, who, like myself perhaps, have met with a severe compound fracture fifteen miles from home, or had to ride a like distance to fetch a catheter.

A. B., aged thirty-five years, sprained his wrist six years since, which continued weak and occasionally very painful on motion, for about twelve months, at the expiration of which time he perceived a small swelling, about the size of a pea, on the radial side of the wrist. This gradually enlarged for two years, when it vacated the wrist, and made its appearance in the palm of the hand, where it remained for three years, gradually increasing in size, till it had assumed the dimensions and much the shape of a large filbert.

It occasions the patient considerable pain and inconvenience whilst at work, and often compels him to desist milking, which forms the principal part of his usual occupation.

About twelve months prior to the operation being performed, I was first consulted; I then assured the patient that by the swelling being pricked, it might readily and safely be cured. He, however, consulted another surgeon, who told him there was danger in the operation, and at once burst the cyst, and afterwards applied pressure; this, however, failed to effect a cure; and in a short time the swelling was as large and troublesome as it was previous to this proceeding.

The patient now being willing to submit to any operation I thought necessary, I introduced the lanceolate director from below upwards (as I felt the pulsation of an artery surrounding its superior margin), first by pinching up a *piece* of the hardened skin of the palm about half an inch from the cyst, and pushed the point of the instrument through it, when it immediately entered the cyst, and part of the jelly-like contents of which immediately flowed out along the groove in the director, and a little external pressure soon emptied the sac by the same passage, leaving the director alone in the cavity; which was next required to well scarify the interior of the cyst. This, however, from the dense skin through which it was introduced pressing it firmly down against the palm and fingers, could not easily be accomplished by raising and depressing the end of the instrument in the usual way. The object, however, was easily attained by pressing with the finger over the cyst, and gently moving the director backwards and forwards, thereby making it scarify both the upper and lower walls of the cyst at the same time.

The director was then withdrawn, a piece of adhesive plaster placed over the wound, a bit of leather several times doubled to form a pad, to make pressure over the emptied cyst, and a few turns of a bandage to cover the whole, completed the operation.

The next day the puncture was found healed, in fact, the patient could not discover where it had been made; very little pain had been felt, but the cyst presented much the appearance it did previous to the operation, being again distended, apparently with fluid, and painful on firm pressure. The compress and bandage were again employed. On the third day it was reduced to about half the size; on the fifth, the walls were collapsed, and no prominence perceptible; on the seventh, it appeared quite cured, and was not the least painful on pressure; on the eighth he returned to work, and has not since experienced any annoyance from it; but on pressure a slight induration can be felt where the cyst previously existed; this, however, is perfectly painless, and the man says the hand is much stronger than it ever had been since the first appearance of the swelling.

The above I believe to be the best mode of treating the majority of such cases. In numerous instances in which I have myself operated, and seen others operate in this way, it has been without a failure, or any disagreeable consequence; while, on the other hand, though perhaps more or less generally successful, I have known pressure, simple puncture, bursting, external stimulants, and injection with tincture of iodine, in some cases fail.

The operation has the advantage of being very simple, not generally painful, mostly applicable, very quickly affording relief, and, to say the least, in the majority of cases successful.—*Med. Times, Jan.* 11, 1851, *p.* 35.

157.—*On Glandular Enlargements in the Groin and Axilla of Young Persons; Treatment by Caustic Potass.*—In a paper on Issues and Caustics, published in the 'Dublin Quarterly Journal of Medical Science' for February 1851, Dr. B. G. Darley refers to the form of constitutional or sympathetic enlargement of the glands of the groin, frequently met with in young men, and not the consequence of the venereal virus, but rather the effect of a weakened and cachectic constitution. This tumour is very indolent in its nature; a long time elapsing before suppuration is established, and resolution is not a common termination. Dr. Darley treats these tumours by making a tolerably sized eschar with caustic potash in the early stage, and covering it with a small poultice. The tumour will be found to have disappeared when the eschar separates.

Allied to this is a tumour often met with in the axilla of young persons. A young man applies for advice, with the arm either in a sling or supported by the other hand, and the shoulder depressed and pushed forward, and there is much anxiety and suffering in his countenance. If this be treated in the common way, we have to wait long before it suppurates; and if it be opened, only a small quantity of thick pus escapes. The opening will soon close, and the abscess point in another direction, leaving sinuses which are tedious in healing. Dr. Darley treats such tumours by making a small eschar with caustic potash in the very beginning, when they are hard and indolent. They must not be mistaken for the acute abscess frequently met with in this situation, and easily treated by incision.—*London Journal of Medicine, April,* 1851, *p.* 376.

158.—*Cases of Typhus and Ague treated by* Dr. Warburg's *Fever Drops.*—[It appears that several physicians of the metropolitan hospitals have for some weeks past been putting to test a tincture of Dr. Warburg. It is said to possess unfailing efficacy in various kinds of fever, especially intermittents. This tincture is being introduced to the notice of the public under the auspices of the profession, and Dr. Warburg himself is distributing gratuitously large quantities for the purpose of getting it fairly tested.]

The tincture has been for several years before the medical profession in various parts of the globe; and it would appear that it has maintained its ground in a very satisfactory manner, particularly for the rapid cure of intermittents, wherein it is stated to be superior to quinine. It is said to have likewise great control over typhoid fever, icterus, &c.; but its powers are most conspicuous in ague. In referring to a pamphlet by Sir Andrew Halliday, 'On the Sickness and Mortality in the West Indies,' published in 1839, we find passages bearing upon the fever drops, which will throw some light on the subject. Sir Andrew, after stating that the quinine had failed in Demerara, says, (p. 21:) "I was induced to have recourse to a remedy which had already become known in the colony, and was much talked of as Dr. Warburg's fever drops. . . . These, the doctor assured me, were prepared from plants, the virtues of which he had ascertained during his sojournings with the native tribes. . . . It was administered in about fifty of our worst cases, and under my own eye, with the most perfect success."

The medicine has since that time travelled far and wide; it was found very useful in our eastern possessions, and has been since introduced into the Austrian Pharmacopœia. We beg to present the following cases to our readers, in order that they may become acquainted with the usual effects of the remedy, and to facilitate any further inquiries they may wish to make. The value of the medicine must, however, be determined by a more extended series of facts than our limits will allow us to enter upon. We leave this task to the discoverer himself, and subjoin some cases from Guy's and St. Bartholomew's Hospitals.

Case 1. *Typhus.* (Notes by Mr. Eldrid.)—John E——, aged sixteen; ill seven days; was admitted into Job ward, Jan. 22, 1851, under the care of Dr. Babington. He had all the symptoms of typhus, with profuse diarrhœa, and subsequently large evacuation of blood.

He was treated by astringents, wine, &c., for about a fortnight, the symptoms being a little improved by the treatment. Muttering was still going on, though the diarrhœa and evacuation of blood had ceased, when he was given Warburg's tincture—thirty minims every fourth hour.

Two days afterwards there was an evident change for the better—the tongue became more clean and moist, consciousness increased, and the bowels were opened but once a day; the patient passed good nights; the skin was moist; and there was decidedly less pain over the abdomen on deep pressure. On the ninth day after the use of the tincture had been begun he was fast convalescing, and was discharged a few days afterwards, having taken some carbonate of ammonia for a short time.

The tincture was tried in an inveterate case of chorea: it seemed to act beneficially for some days, but the improvement did not last. It was likewise tried in a girl with icterus, and seemed not to influence the disease.

CASE 2. *Quotidian Ague.*—Margaret H——, aged forty years, a strong, swarthy-looking Irishwoman, with black hair and eyes, was admitted into Lydia ward, March 26, 1851, under the care of Dr. Babington. The patient lives at Wapping, and is in very poor circumstances; she is married, has had seven children, and has been ill five weeks. Three weeks ago she was attacked with rigors, pains in the head and limbs, and a week afterwards the shivering fits occurred regularly every second day; for the last seven days she has had them every evening. The fits had first come on at about one o'clock in the day, but they had gradually appeared later, and on admission seized the patient at about five in the evening. The catamenia are regular; the bowels confined; there is pain over the region of the liver and spleen, headache, and cough; tongue coated and furred; pulse 89, compressible; urine dark. She was ordered a dose of aperient medicine, and to take the Warburg tincture early the next morning; half the bottle to be given after breakfast, the other four hours afterwards. (The whole bottle contains about an ounce.) Before taking the tincture, on the next day, the patient had a violent fit, followed by the sweating stage. The medicine was regularly administered, and on the following morning the fit was very slight.

From this period the patient remained quite free from ague, and is progressing very favourably.

(Notes by Mr. Langdon.)—Johanna C——, aged thirty two, was admitted into St. Bartholomew's Hospital on February 6, 1851, under the care of Dr. Burrows. In the autumn of last year, whilst residing in Essex, she had an attack of tertian ague, which lasted a fortnight, and readily yielded to treatment. She returned to town, and two months ago (a fortnight after her confinement) she was attacked with sharp pain on the right side, about the margin of the ribs. This lasted about eight days, but she had no medical advice, merely took aperient medicine with much relief. From that time the patient observed that her abdomen increased in size, and grew very large. About a fortnight ago attacks of shivering occurred daily at two o'clock, P.M., lasting about an hour, but not followed by the other stages of ague. She is a married Irishwoman, the mother of two children, and her only employment her domestic occupations. Her countenance and skin are natural; pulse 92, small and soft; tongue clean and flabby; appetite good; bowels constipated for two days. The abdomen is swollen, rather tense, and tolerant of pressure; there is a distinct sensation of fluctuation, and dulness on percussion in the most dependent part, changing with position. No tumour or enlarged viscus can be discovered. She was ordered the common purgative draught.

The patient was freely purged, and was ordered, on the second day, a drachm of Warburg's tincture, to be taken every third hour. The urine had been tested: it contained no albumen, was clear, but with some slight deposit of the phosphates by heat. On the third day it was found that the patient had perspired freely, and the urine gave no deposit by heat. The tincture was continued at the same intervals. On the fourth day the diaphoresis was still very copious; six doses had been taken on the previous day; the patient slept well; the alvine evacuations were relaxed, and the urine abundant. On the fifth day the perspiration was less profuse, the stools the same as before, the urine plentiful, and the fluctuation in the abdomen less distinct. On the sixth day it was ascertained that full four pints of urine were passed in the twenty-four hours; some griping was complained of; and as it continued on the following day, the tincture was discontinued. The patient improved very rapidly in every respect, and was discharged on the nineteenth day after admission, the abdomen yielding no sensation of fluctuation, and the patient stating that it had returned to its natural size.—*Lancet, April* 19, 1851, *p.* 430.

159.—*New Mode of Administering Cod-liver Oil.*—M. LOZE, a naval surgeon, stated that he had attributed the failures of this remedy in phthisis to its non-absorption; and that, with the view of effecting this, he had combined the oil with a mucilage containing pancreatic juice, which thus forms an artificial chyle. In this form the oil is readily and completely absorbed and its effect more directly obtained in phthisis.—*Med. Gazette, April,* 1851, *p.* 694.

160.—*Practical Remarks upon Ipecacuanha, with a Formula for the Syrup.*—By DR. EDWARD JENNER COXE, New Orleans.—The value and efficacy of ipecacuanha, as an emetic or expectorant in many affections of the respiratory organs, more particularly of children, are too generally conceded and acted upon to require an extended notice.

In dysentery, ipecacuanha has been, and continues to be, much used. By Mosely, who held it in high repute, ipecacuanha was given in doses of half a drachm to two scruples; and by the late Professor B. S. Barton, it was regarded as almost a specific, particularly in cases of a typhoid character. In chronic diarrhœa, small doses of the powder, repeated several times a day, either alone, or preferably in conjunction with opium or Dover's powder, will be found of great value, and frequently, with strict attention to a proper regimen, will succeed in curing many most unpromising cases. In these last cases, when dependent upon, or connected with, derangement of the biliary secretion, additional power will be given to the above doses, by uniting with them two or three grains of blue mass, to be repeated every night for three or four nights, and subsequently, every third or fourth night, as long as may be deemed requisite or advisable for the individual cases.

In hæmorrhage from the lungs or uterus, small doses of ipecacuanha, combined with sugar of lead and opium, are used with decided benefit. In hæmorrhage from the stomach, large doses of ipecacuanha have been strongly recommended, more particularly by Dr. Condie, who has published some valuable practical remarks upon the subject.

In the early stages of the bowel affections of children, no less than in adults, an emetic of ipecacuanha will often succeed in arresting the progress of the disease, and rarely fail to prove beneficial.

By combining from one-fourth to half a grain of ipecacuanha, with a minute portion of opium, and two or three grains of blue mass, the alterative properties of this last are materially enhanced. This method will be found of great benefit in most of the mild cases of biliary and bowel derangement so prevalent in this region, at different seasons of the year.

With the exception of that sudden and often fatal disease, croup or hives, there are perhaps none of the pectoral diseases of children, in which the syrup of ipecacuanha may not be resorted to with advantage; but in croup, no little experience, and an almost uniform success in its treatment, authorize the confident belief, that we possess no one remedy, or combination of remedies, comparable, or equal to the well-known Coxe's Hive Syrup, provided it be properly prepared. Dr. Good has remarked, that the ipecacuans concur in operating very generally upon the skin, at the same time that they excite the stomach, increasing, in a slight degree, the discharge of mucus from the lungs and adding a little to the peristaltic motion of the bowels, while the antimonials act more violently upon the stomach, bowels, and skin, but less upon the mucus secernments.

Finding the process for the syrup, recommended in the United States Dispensatory, attended with unnecessary trouble, and uncertain as to uniformity, I adopted, after many trials, the following formula,

℞. Ipecacuan. rad. contus. ʒ iv; aquæ Oij; sp. vin. rect. ʒ x; sacch. alb. lbs. iiij.

Macerate the bruised ipecacuanha in one pint of boiling water for twelve hours, then add the remainder of the water and alcohol, and continue the maceration for five or six days. Place the whole in a small displacement apparatus, returning the fluid that passes until it becomes perfectly clear, and then continue to pour a small quantity of water occasionally upon the surface, until two pints and ten ounces by measure shall have passed. Now add the sugar, and with a gentle heat, evaporate until the syrup shall be of a proper consistence, readily ascertained by occasionally taking out a small portion and allowing it to cool. When of a proper consistence, pass it through a small quantity of fine tow placed in the tube of a funnel, to render the syrup clear and transparent. Three pints and ten ounces of syrup is the quantity obtained. It is, in strength, nearly double of that prepared by the usual formula; and this I consider an additional recommendation.—*Western Lancet.—London Journal of Medicine, Feb.* 1851, *p.* 178.

---

161.—*Professor Mettauer's Aperient Solution.*—PROFESSOR METTAUER, in an article on constipation speaks in the highest terms of praise of the following "Aperient Solution:"—℞. Aloes soc. ℥ ij-s; sod. supercarb. ʒ vj; aquæ Oiv: sp. lavand. co. ℥ ij. After digesting for fourteen days, the clear liquor may be either decanted or allowed to remain. Age improves both the power and taste of the solution. "I claim for myself," the professor says, "the sole credit of originality in the invention of this compound,"—a modest claim enough too, which we hope posterity will ratify. The aperient acts both on the liver and the muciparous glands; corrects and prevents acidity; and probably aids assimilation when oily articles are used as food. It should be given in about half an hour after dinner and supper, the common dose being ʒj, though in some cases this may be increased even to ℥j. A single dose is sometimes sufficient, and then should be given at bed-time, diluting the solution with water, if desired. It is suitable to almost every example of constipation complicated with defective biliary secretion, except when the state of the stomach is alkalescent; and may be used also in the constipation of pregnancy. It has been found useful in constipation with hæmorrhoidal tumours about the verge of the anus, and especially so in that which accompanies all varieties of perverted menstruation; so much so, that its inventor regards it as a valuable emmenagogue wherever constipation is present, while fever and inflammation are absent. In constipation connected with long-continued derangement of the biliary system, or what is sometimes called bilious dyspepsia, it is the most useful of aperients, with which nitro-muriatic acid in doses of a few drops before meals (the aperient being given after meals) may often usefully be associated. It has often been employed with great benefit in the constipation of hysteria and hypochondriasis, a "nervine incitant," as castor or valerian, being added to it in such cases. In the constipation of the convalescent stage of fever, when the patients have began to take solid food, it is of great value in preventing relapse, by regulating the functions of the bowels and promoting digestion. It requires in these cases to be cautiously given in small doses. For students of sedentary habits, "it is the very best remedy in the world for obviating the constipation so troublesome and health-destroying with them at that important and interesting period of their lives. If used regularly, their bowels will seldom or never become constipated; and the use of the remedy is not attended with inconvenience nor trouble, and never interferes in the smallest degree with study or diet." (In spite of the author's somewhat extravagant laudation we do not doubt this *is* an excellent aperient, and have therefore transcribed the formula.)—*Amer. Journal Med. Sc.*, N. S., No. 40, p. 380.—*Brit. and For. Medico-Chirurg. Review, April,* 1851, *p.* 549.

---

162.—*The Biberon, a New Feeding-Bottle.*—We have seldom seen, says the editor of the Lancet, anything more beautiful or better adapted for its use than the Biberons, or feeding-bottles, for infants, invented by M. Darbo, of Paris, and introduced into this country by Mr. Elam, of Oxford-street. Though they are of recent invention, they have obtained great celebrity, and have come into general use in Paris. The nipple of the Biberon is made of cork, the superiority of which over Indian-rubber, or calves' teats, is at once apparent. It has not the repulsive taste or smell of the former, neither can it putrefy, as the latter always do. The cork-nipple being hollow and elastic, the flow of milk is never interrupted: but calves' teats and India-rubber nipples becoming flattened by the pressure of the child's lips in sucking, the supply of milk is stopped—a very obvious disadvantage. The Biberon is so constructed, air being admitted through a delicate spiral tube, that the child cannot suck any air, which alone is a strong recommendation. The supply is regulated by a little ivory pin, which if inserted into the tube, and fixed in either of the divisions for that purpose, diminishes the quantity, but if taken away altogether, enables the child to feed as fast as may be desirable. Lastly, the Biberon is clean, compact, portable, and very easily kept in order.—*Lancet, Feb.* 15, 1851, *p.* 184.

163.—*Ammonio-Acetas Ferri and Syrupus Ferri Acetatis.*—[MR. ALFRED GEORGE ROPER, in a letter to the editor of the Lancet, offers the following formula for the above preparations, and states their efficacy in cases where iron is required. The syrup, he says, is adapted for children, and they may be combined for adults.]

*Ammonio-Acetas Ferri.*—Dissolve one drachm of iron wire in half an ounce of hydrochloric acid, mixed with an equal quantity of water (by measure); then add half a gallon of water, and precipitate with five ounces of liquor potassæ; set aside for twenty-four hours; draw of the supernatant liquor with a syphon; fill again with water, and repeat the process a third time. Lastly, collect the precipitate on a linen filter; dissolve the oxide thus prepared in two ounces of strong acetic acid, and make up the measure to ten ounces with distilled water; set aside for twenty-four hours, and filter. To every twenty ounces of the filtered liquor add half a drachm of strong liquor ammoniæ. Dose, ten minims to half a drachm.

*Syrupus Ferri Acetatis.*—Dissolve two pounds of sugar in ten ounces of water, in a water bath; to the syrup, whilst hot, add eleven ounces of the acetate of iron, prepared as above (without the ammonia); when cold filter through paper. Dose, twenty minims to one drachm.—*Lancet, Nov.* 30, 1850, *p.* 609.

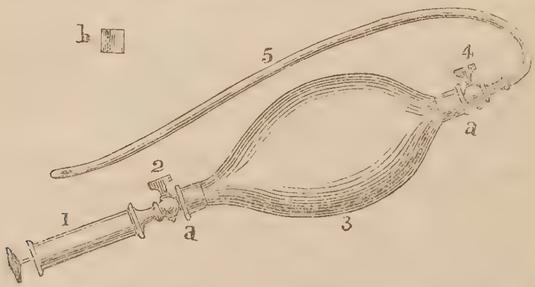
## 164.—ON A NEW STOMACH PUMP.

### By DR. WILBRAHAM FALCONER, Bath.

[Dr. Falconer conceives that the stomach pump of the following description and form, may be advantageously used in lieu of those now employed.]

The apparatus consists of an exhausting syringe (1); an oval glass receiver (3), capable of containing from sixteen to twenty ounces of fluid; an india-rubber or gutta-percha tube (5); together with two caps for either end of the receiver, similar to that represented at *b*. 2 and 4 are stop-cocks; *a a*, the extremities of the receiver, over which the caps are to be screwed when the exhausting syringe and tube, with the stop-cocks, have been removed.

When intended for use, the syringe and tube are screwed to the receiver, as represented in the sketch. The stop-cock nearer the tube is to be closed, while that nearer the syringe is to be opened. The receiver is then to be exhausted as much as possible by successive strokes of the syringe-piston, and when this is accomplished, the syringe may, for convenience, be separated from the stop-cock. The tube is then to be passed into the stomach, and the stop-cock attached to it being opened, the contents of the stomach will rapidly ascend into the receiver. When the fluid ceases to ascend, the tube is then to be withdrawn, and both it and the stop-cocks being removed, are to be replaced by the caps.



One disadvantage attaches to this apparatus—namely, that the stomach cannot be washed out by it. There are, however, advantages connected with it, which Dr. Falconer points out as rendering it worthy of attention. "It is an apparatus simple in construction and in its principle of working. No injury can arise from any error in the employment of it. Its adjustment occupies considerably less time than the ordinary stomach pumps. The contents of the stomach are removed much more quickly than by the ordinary apparatus, and they ascend into the receiver in one steady and continuous stream. The jerking action of the usual stomach pump is wholly avoided, and the danger of thus injuring the coats of the stomach evaded. The apparatus now proposed for use is infinitely much cleaner than any stomach pump now in use, inasmuch as the latter frequently, if not always, contain some, if not a large, amount of impurity collected around the piston and valves, the produce of their working, or decompositions resulting from the fluids brought into contact with them, and also by the too often filthy state in which they are left after use. So great, indeed," says Dr. Falconer, "as far as I have been able to ascertain, is the amount of impurities to be found in many stomach pumps in use, that an advocate for the defence of a prisoner charged with an attempt, whether successful or not, to poison, might, I apprehend, very properly demand some information respecting the state of the instrument employed in removing the contents of the stomach, and urge that doubts as to the condition of those contents might be entertained by the court. The materials of which the apparatus now suggested for use in lieu of the ordinary stomach pumps is made ensures cleanliness, and the fluid removed from the stomach will have its integrity safely preserved. It flows direct from the stomach into the receiver, whence, by means of the caps, which can be properly secured by tape and sealing-wax, it can be transmitted to any distance for the purpose of analysis. I am disposed to regard that the analysis of even a small quantity of fluid thus removed from the stomach would be more satisfactory than a larger amount obtained by the usual means. I have endeavoured, and I trust fairly, to point out the advantages of the apparatus I have suggested Should it prove useful, my object will be gained. I cannot, however, conclude without expressing my thanks to Messrs. Weiss for the care and attention they have paid to the manufacture of the apparatus, and to state that by them only is it made."—*Lancet, Jan.* 4, 1851, *p.* 16.

---

165.—*Case of Successful Administration of the Key-tse-Sing, or Japanese Emmenagogue.*—Communicated by Dr. E. Williams.—[The patient Charlotte M—— was a stout girl, twenty years old. The catamenia appeared at the age of thirteen, but ceased about the age of sixteen, previously to which she had epileptic fits for three months. For three or four years previous to the administration of the remedy, she had had regular attacks of hæmoptysis or epistaxis every three or four weeks, though no sign of tubercle could be detected in the chest. Every means was tried to restore the discharge, but, says Dr. White, Physician to the County Hospital, Winchester, under whose care the case occurred,]

All having failed, after six months' time I resolved to make an experiment with the Key-tse-Sing. On Nov. 6th she commenced taking three drachms of this medicine, every six hours, in a little hot gin-and-water, and continued to do so for three days, when, not having experienced any effect from it, except some pain in the back, she omitted it for two days. I urged her to persevere with the medicine a little longer, and she recommenced taking it every four hours. On the second day (Nov. 13th) the catamenia appeared, and flowed normally for three days.

She felt no inconvenience from the medicine, except some slight pain in the back.

*Remarks.*—I will not occupy your pages by any lengthened remarks. I am justified in concluding from the above, and the numerous other reports I daily receive, as well as from cases in which I have had an opportunity of exhibiting it in my own practice, that this remedy will prove one of the most certain and valuable additions to our materia medica; and the only fear I have in its introduction is, that it may be abused, and become the too ready instrument of procuring abortion.—*Lancet, Jan.* 4, 1851, *p.* 10.

166.—*New Preparation of Iron.*—Dr. Routh exhibited to the Medical Society of London two specimens of phosphate of iron dissolved in metabasic phosphoric acid—one in a solid, the other in a fluid state. The compound was prepared by adding as much phosphate of iron as the metabasic phosphoric acid in a boiling state would take up, and allowing it to cool. The proportions would be found, as nearly as possible, two of acid to one of the phosphate. The solution obtained was of a semi-transparent greenish or slaty hue. If exposed to the air for a day, it hardened; but mixed with liquorice powder or flour, it could be made up at once into pills. The compound was soluble in any proportion of water, and free from any nauseous, inky taste. Dr. Routh had not analyzed it, and could not assert whether it was simply a solution of the phosphate in the acid, or a new super-phosphate that was formed. He had given it largely. It appeared to him to be better adapted and more speedy in bringing about a cure, than other preparations of iron, in some cases of anæmia and debility, brought on by venereal or other excesses, over-study, and other depressing diseases, in which there was a prevalence of nervous symptoms, and a large quantity of phosphates voided by the urine; *i.e.*, as the former might be considered to supply the amount of carbon necessary for combustion directly to the lungs, thereby checking the drain upon the system, and allowing it to rally from its hectic state; so he supposed the present remedy supplied directly to the brain the amount of phosphorus necessary, to the undue diminution of which the nervous disorder was probably due. The medicine did not gripe or constipate. He gave it in doses of one or two grains three times a day.

In answer to a question, Dr. Routh stated that he had obtained one specimen from Mr. Morson; but most of that he had employed had been prepared by Mr. Greenish, of New-street, Dorset-square.—*Lancet, Jan.,* 25, 1851, *p.* 94.

---

167.—*Administration of Iron in Food.*—M. Martens has lately read an essay before the Belgian Academy of Medicine, on Ferruginous Medicines. Among his conclusions, as published in the 'Gazette Médicale de Paris' for 30th of November, we find the following:

"Wheaten bread may be rendered much more nutritive" for chlorotic patients, "by adding a small quantity of sulphate of iron. In this way alone, it can be capable of forming a substitute for meat."

In the discussion, it was suggested that the same method of medication would be beneficial to patients recovering from acute diseases, especially when the system was not yet able to bear an animal diet. The idea is good: and would be easy of application.—*London Journal of Medicine, Jan.,* 1851, *p.* 68.

---

168.—*Formation of Artificial Milk.*—In the July number of the 'Bibliothek for Læger,' Dr. Panum writes as follows:—It occurred to me that the question of the identity of the material I have been describing with casein, might be solved by the *synthetical* method, which, though it can seldom be satisfactorily employed in scientific diagnosis, yet in the inability of analytical chemistry with regard to the protein compounds, is not to be despised. If it were possible, by adding the necessary constituents, to form from the substance under consideration some universally known product containing casein, such as milk or cheese, we should have a striking proof of the identity of the substance with casein.

I obtained a quantity of serum from bullock's blood. To this I added acetic acid, in the proportion of six drops of concentrated acid to an ounce of serum, and then a considerable quantity of water. The substance described in my former contributions sank, on standing, to the bottom of the vessel, so that the superabundant clear fluid could be poured off. On again adding water and letting the substance sink to the bottom, it was rendered almost perfectly free from soluble albumen, etc. After it had settled as much as possible, the water was poured off, so as not to waste the substance, which remained suspended in a greater quantity of water than casein is diluted with in milk. It was now my object to find out, whether the solution of this substance produced by salts or an alkali could be brought to coagulate by contact with the mucous membrane of the stomach of kittens or puppies; and whether it were possible to produce a substance which, in taste and other circumstances, should agree with milk. But as it would probably be difficult to make animals use the solution as milk, unless the other constituents of milk, namely butter and sugar, were mixed with it, and as the taste and peculiarities of cheese might be modified by them, I first tried, by adding these substances, to produce a liquid which should have some resemblance to milk. At a temperature of 30 Raumer, I added to the milky liquid phosphate of soda, till all the supposed casein was dissolved. I then added butter and sugar in the proportions in which they are usually contained in milk, and, after the butter was melted, I shook the whole mixture in a flask. The liquid, at first greyish or dirty yellow, became of the colour of egg-flip, and, as it cooled, became more and more like milk. The clearer and the less mixed with red blood-corpuscles the serum was, the clearer was the solution and the whiter the milk-like fluid. If the serum was perfectly free from blood-corpuscles, the emulsion, when diluted with water, had the same bluish colour as milk and water; but if there was a strong blood-red tinge in the serum, the solution in phosphate of soda had a reddish and the emulsion a weak yellowish tint. The product had a taste which bore a most striking resemblance to that of true milk; only it was a little more sweet, and left a feeble, though recognisable, bitter after-taste.

Under the microscope, I observed in the emulsion innumerable small globules, exactly like those in milk. On comparing them with those found in milk, scarcely any difference could be perceived, except that their average size in the artificial milk was somewhat greater than in the natural. The globules in the artificial milk were surrounded by a covering, and not simple drops of oil; this covering often showed a distinct though very fine folding, especially on the larger globules. The globules (like those of true milk) were not dissolved in ether, until the covering had been removed by treating them with nitric acid. But by the side of these small globules there were some which were somewhat greater, and presented in their interior appearances which, if they had been furnished from the organised body, would have been certainly considered as nuclei, granular cell contents, etc. . . .

As the difficulties, which might have been expected to arise in the microscopic comparison of the artificial and the true milk, had so unexpectedly disappeared, I felt myself called on to inquire whether any more perfect imitation could be attained. The most striking difference, which the artificial milk presented on a superficial examination, was that it required a far shorter time than real milk to form a layer of cream on the surface, and that, after standing some time longer, a layer of clear liquid was formed at the bottom of the vessel. I ascribed this failure to the greater average size of the globules in the emulsion, as compared with true milk globules. When I employed sugar of milk in place of common sugar, the emulsion was uniform, and showed no layer of clear liquid at the bottom of the vessel, even when more water was added. At the same time, the average size of the corpuscles became less, so that they could not be distinguished by their size from the true milk-globules, and they were now free from any appearance of nuclei or granular cell contents The cream was longer in rising to the surface; and the great sweetness which the emulsion had, when made with common sugar, was no longer prominent, so that the liquid tasted still more like milk. A slight smack of salt disappeared, when the butter was washed in water; and a slightly harsh taste of the butter was still farther removed when unsalted butter was used, which had been freshly churned, and washed with water. There was still a slightly bitter after-taste, but this was removed by using carbonate instead of phosphate of soda; a much smaller quantity of the former salt being required to produce the required solution. It was now impossible for me to recognise, by the taste, any difference between artificial and real milk. As, however, it might be said that "*de gustibus non est disputandum*," I submitted the liquid to the taste of others, with the same result. . . .

It now only remained, to render the agreement perfect between the artificial and true milk, that the former should coagulate when brought into contact with the mucous membrane of the stomach. When I used common sugar, it was not wonderful that my attempts thus to make the liquid coagulate, failed; for it is well known, that the addition of sugar to milk retards or prevents its coagulation. But, even after I had used sugar of milk, I could not perfectly succeed in making the milk coagulate. Instead of fresh calf's stomach I used the artificially prepared swine's stomach, which is commonly used in the dairies, with or without a temperature of 40 R.; and I also gave the liquid to two kittens, who drank it greedily, and whom I then killed. Under these circumstances, as well as by mere standing, the artificial milk turned, and separated into a clear liquid, and a thick curdy mass, which had very strongly the well known smell of sour milk; but I could not produce a consistent coagulum, which could be collected in linen, and pressed out. But when the original substance separated from the serum, after being washed from soluble albumen, was warmed, it formed masses resembling pressed curds, and could be collected on a cloth, while the liquid ran through quite clear.

The identity of artificial with natural milk, and of the substance found in the blood with casein, may seem to be not proved; yet the resemblance is so great as to strengthen the probability of their being identical. I have in vain endeavoured to produce from albumen, precipitated from albuminate of soda by acetic acid, and dissolved in phosphate or carbonate of soda, a liquid having the slightest resemblance in taste to milk.—*London Journal of Medicine, March,* 1851, *p.* 256.

---

169.—*Cases illustrative of the Power of the Cold Douche in Promoting and Arresting Absorption.* By DR. C. F. SLOAN, Ayr.—[Dr. Sloan remarks that the following cases of an encysted tumour,—a gôitre and a scirrhous mamma,—are the only morbid growths which he has submitted to its action, and in all there has been decided improvement. The water with which he has practised is supplied to the town from a basin 100 feet above the lowest street. He applies it by means of the gutta percha tubing fixed to one of the pipes, allowing the stream to strike the object at from six inches to two feet from the end of the tube; at all events, before the column of water is broken. A pressure of less even than forty feet of water produces excellent effects. The application should be continued until a decided sense of pain is induced, or for something less than five minutes.]

CASE 1.—The first case was one of encysted tumour in a male, aged 36, situated on the sacral origin of the left gluteus maximus, of such a size, that a mould taken by sheet gutta percha was capable of containing seven fluid drachms. It had existed ever since the patient could remember, was latterly increasing perceptibly, and from its situation gave considerable annoyance. The douching commenced on the 6th September, 1849, and continued daily for a minute or two till the 6th December of same year. At this date the tumour was reduced to about one-fourth of its original size, a mould now taken being capable of containing only two fluid drachms, and the annoyance had almost disappeared. The improvement was most marked in the early part of the treatment, which was prolonged in the hope of a perfect cure. I have examined the tumour lately, and find that it still retains the last-mentioned size, so far as can be determined by manual examination. Of course excision was the preferable plan here, but the trifling pain and confinement were objected to. This case is chiefly valuable as showing the power of the douche over a class of tumours not very amenable to other treatment than the knife.

CASE 2.—The next case was a bronchocele of the description sometimes called hydrocele of the neck, occurring in an otherwise healthy girl, aged 20, and which had existed since childhood. This, after a long continued treatment by iodine and seton, still retained a size which caused considerable difficulty of breathing, and of which the mould could contain six fluid drachms. The first effect of the douche in this instance was to cause a rapid and general deposition of fat, the amount of which I was able more accurately to determine from the comparison of two casts of the neck, which were taken on the 25th September and 31st

October, 1849, respectively. This did not arise from the discontinuance of the iodine, as she had taken none of that medicine for six months previously. The increase of the adipose tissue may tend to confirm one of the opinions entertained with regard to the use of the thyroid gland, and even to indicate an influence that the imperfect discharge of its functions may exercise in inducing cachectic disease. The douching was interrupted during winter, when the tumour remained stationary, and was resumed in spring. On the 29th June, 1850, the difficulty of breathing had ceased, and the mould then taken could contain only one fluid drachm. The treatment was continued, though irregularly, till 29th September last, when the tumour was still further reduced, the mould being capable of containing only forty minims. As, in the first case, the treatment was prolonged in the hope of a perfect cure, but in this I was disappointed.

Case 3.—The last case was a scirrhous mamma, with retraction of the nipple and sanious discharge, in a female, aged 45, otherwise healthy, with all the functions regular, and the glands of the axilla unaffected. The tumour had been pronounced cancerous by a high authority in such cases; but excision was not thought advisable. It had been kept in check for three years by local and general means, chiefly leeching and periodide of mercury; but, in July last, she presented herself with the skin over the tumour becoming red and tuberculated. I recommended the douche, but took no cast, as I scarcely expected any improvement. I was agreeably surprised, however, by seeing the patient some weeks later with the tumour decidedly less, and the tuberculated appearance much diminished. The douching at first increased the sanious discharge, which afterwards diminished. The treatment has been continued ever since with occasional intervals of a fortnight. I had an opportunity of examining this case a few days ago, and found the skin, that had formerly been red, of a natural colour, and only one tubercle out of three or four remaining. I have no doubt that the douching, in this instance, has considerably retarded the stage of ulceration. The treatment was conducted by means of a syphon drawing its supply from a tub, elevated only a few feet.—*Monthly Journal of Med. Science, Dec.,* 1850, *p.* 501.

## 170.—EXPERIMENTS ON ABSORPTION—INTRODUCTION OF INSOLUBLE SUBSTANCES INTO THE CIRCULATION.

By M. Bernard.

Substances that are capable of being absorbed may be divided into three classes;

1. Liquids or solutions.
2. Gaseous bodies.
3. Solids capable of minute division.

The last mode of absorption has been disputed; but M. Bernard states that he has shown this to be no less real than that of undissolved fatty matters.

M. Bernard has studied the subject of absorption in reference to the following points:—

What part do the nerves perform in this process? Is it entirely physical, and independent of nervous influences? Does the quantity of blood influence absorption? Does absorption take place in a bleeding animal with a rapidity proportioned to the loss of blood?

The stomach, when empty, absorbs freely; but when full, and in the act of secretion, it absorbs no longer. Absorption takes place generally where there are vessels, as in the lungs, the cellular tissue, the skin deprived of its epidermis; but nevertheless, there are substances which are not equally absorbed in all parts of the body, which will cause death when introduced into the blood or tissues, but are inert when introduced into the alimentary canal. A living or a dead membrane is only capable of endosmosis up to a certain point; after saturation the process will cease. Does carbonic acid produce asphyxia by its own poisonous nature, or by the impediment offered to respiration? An elective or specific absorption has been attributed to the lacteals. M. Bernard points out that the phenomena are due to peculiarity of structure of the lymphatics and veins of each intestinal villus. MM. Magendie, Segalas, Sandras, Bouchardat and others, considered that certain substances pass from the intestines by the veins, and not by the lacteals. M. Bernard indicates an error, in their observations having been made on the contents of the portal vein and thoracic duct. If prussiate of potash be injected into the stomach, and the lacteals be examined as they pass from the intestines, the salt will be detected, and thence to the glands.

In order to illustrate the various modes of absorption, M. Bernard first treats of the absorption of poisons.

The poison of the viper is clearly not absorbed by the mucous membrane, or the animal would poison itself by the secretion of its venomous saliva. The same may be observed of the poison of rabies. A parallel fact is recorded by Humboldt:—The South American Indians, in the neighbourhood of the Orinoco, have a poison (the *curare* or woorara poison), collected from plants of the Strychnos tribe, and with which they poison the weapons used in killing animals; and yet these animals feed with impunity upon the plants from which the poison is derived.

M. Bernard at first supposed that this fact was to be explained by attributing its separation from the blood in the liver; but having injected a portion of this poison into one of the veins of the portal system, the effects of poisoning speedily followed, showing that the immunity resulted from some influence exerted upon the poison in the alimentary canal.

M. Bernard introduced a portion of woorara through a fistulous opening into the stomach of a dog, and administered also a portion by the mouth without producing ill consequences. The gastric juice, under both circumstances, exerted a poisonous influence when inserted into the cellular tissue, rendering it evident that the woorara had not been destroyed by the chemical action of the gastric juice.

When injected into the rectum, or enclosed in a portion of intestine between two ligatures, the poison was absorbed without ill effects.

The analysis of the woorara, and of the poison of the viper, exhibits in each an insoluble substance, which M. Bernard regards as a ferment analogous to animal and vegetable diastase, or to pepsin.

M. Bernard gives the result of experiments made upon the action of *amygdaline* and *emulsine*—two substances which, separately, are inactive; but which, mixed together with water, form prussic acid poison of great potency. If administered to animals so as to combine in the course of the alimentary canal, no injurious effect ensued; but if made to meet in the cellular tissue, or in the course of the circulation, the phenomena of poisoning are immediately manifested, the odour of prussic acid being perceptible in the dead body.

The same occurs if the *amygdaline* be introduced into the digestive tube, and the emulsine into the blood; because the former is dissolved and absorbed; but the emulsine containing the insoluble ferment is not absorbed, and the poisonous effect does not follow if the latter be in contact with the mucous membrane.

Investigations into the phenomena of *endosmosis* reveal curious analogies with reference to the non-absorption of certain substances by mucous membranes. If an endosmometer, formed of animal membrane, be plunged into a solution of woorara, the water passes, and not the poison. If the experiment be tried on a solution of *emulsine*, the water will pass, while the *emulsine* remains. The diastase of a germinating seed is in the same predicament, because vegetable membranes possess similar properties. If a bean be placed in gastric juice or a solution of pepsine, it will become swollen by imbibition, and be capable of germination so long as its surface is unbroken. In this manner seeds taken into the digestive organs may retain their germinating powers, and be conveyed to great distances. But if the slightest fissure exist on its surface, the pepsine or diastase will enter its structure, and it will be digested. In a similar manner amygdaline and emulsine exist distinctly side by side in the bitter almond so long as its structure is entire: they are separated only by a thin membrane.

M. Bernard alludes to the absorption of vermilion and of Prussian blue from tattooed marks in the skin, and the detection of these substances in the neighbouring glands by M. Follin. M. Sterlin, he adds, has also detected abundant particles of charcoal in the lungs of animals to which that substance had been largely administered. These facts, M. Bernard considers, establish the absorption of insoluble substances by the lymphatics. The explanation of their manner of absorption is still wanting. Microscopical anatomy does not detect orifices in the villi of mucous membranes.

The explanation of these apparent cases of elective power of absorption in mucous membranes is simply a want of absorption: it is only the soluble portion which cannot be absorbed, while the insoluble portion is absorbed; thus reversing the doctrine—*corpora non agunt nisi sint soluta.* All substances not capable of absorption belong to the class of ferments or poisons.

M. Bernard mentions some facts from inorganic nature analogous to the preceding—*e. g.*, if a solution of acetate of copper be poured upon a filter of animal charcoal, the acetic acid will pass through, and the copper remain in the charcoal. In retention of urine the water is absorbed, while the urea becomes concentrated. The same is observed with reference to bile, which becomes inspissated on retention.

M. Bernard gives a new explanation of the phenomenon of the rapid appearance of certain fluids in the urine after their ingestion into the stomach. He has discovered that liquids, after having traversed the vena portæ and the liver, and having arrived in the vena cava inferior, descend again by that vein to the renal veins; that there exists a valve in the interior of the vena cava, at the point of the orifices of the renal veins, which hinders the passage of the blood in the iliac veins, and the fluid is obliged to pass by the renal veins, which thus for the time perform the office of arteries. This phenomenon occurs only when a large quantity of liquid has been drunk. The mechanism exists in all animals which take a large quantity of food of a slightly nutritious quality. If only a small quantity of fluid be taken, the circulation proceeds uninterruptedly towards the heart.

The lumbar and azygos veins form a collateral circulation by which the obstruction of the iliac veins is obviated. The communication of the portal circulation in the liver with that of the vena cava favours the rapidity of the passage of fluid, and forms a diversion for the relief of the heart against so sudden an increase in the quantity of the blood.

M. Bernard further points out the muscularity of the vena cava from the hepatic to the renal veins. This portion he regards as a true heart, which acts temporarily under the circumstances above indicated, while the valves before named prevent the flow of blood beyond the renal veins. The quantity of blood thus diverted passes by urinary secretion. M. Bernard remarks also that this arrangement of the circulation may explain the rapid disappearance of certain poisons in some animals. It may be regarded as the representation of the circulation in reptiles, where the blood of the lower parts of the body passes through the kidneys.—*L'Union Médicale.—Med. Gazette, Nov.* 22, 1850, *p.* 908.

---

171.—*On the Divisibility of Matter.*—Many years ago a curious calculation was made by Dr. Thomson, to show to what degree matter could be divided and be still sensible to the eye. He dissolved a grain of *nitrate of lead* in 500,000 grains of water, and passed through the solution a current of sulphuretted hydrogen, when the whole liquid became sensibly discoloured. Now a grain of water may be regarded as being about equal to a drop of that liquid, and a drop may be easily spread out so as to cover a square inch of surface. But, under an ordinary microscope, the millionth of a square inch may be distinguished by the eye. The water, therefore, could be divided into 500,000,000,000 parts. But the lead in a grain of nitrate of lead weighs 0·62 grains; an atom of lead cannot weigh more than 1-310,000,000,000th of a grain; while the atom of sulphur, which in combination with the lead rendered it visible (in the mass?), could not weigh more than 1-2,015,000,000—that is, the two billionth part of a grain.

But what is a billion, or, rather, what conception can we form of such a quantity? We may say that a billion is a million of millions, and can easily represent it thus—1000,000,000,000. But a schoolboy's calculation will show how entirely the mind is incapable of conceiving such numbers. If a person were able to count at the rate of 200 in a minute, and to work without intermission twelve hours in the day, he would take to count a billion 6,944,944 days, or 19,025 years 319 days. But this may be nothing to the division of matter. There are living creatures so minute, that a hundred millions of them may be comprehended in the space of a cubic inch. But these creatures, until they are lost to the sense of sight, aided by the most powerful instruments, are seen to possess organs fitted for collecting their food, and even capturing their prey. They are therefore supplied with organs, and these organs consist of tissues nourished by circulating fluids, which circulating fluids must consist of parts or atoms, if we please so to term them. In reckoning the size of such atoms we must speak not of billions, but perchance of billions of billions. And what is a billion of billions? The number is a quadrillion, and can be easily represented thus—1,000,000,000,000,000,000,000,000; and the same schoolboy's calculation may be employed to show, that to count a quadrillion, at the rate of 200 in the minute, would require all the inhabitants of the globe, supposing them to be a thousand millions, to count incessantly for 19,025,875 years, or for more than 3000 times the period for which the human race has been supposed to be in existence.—*Low's Inquiry into the Simple Bodies of Chemistry.—Med. Gazette, Dec.,* 6, 1850, *p.* 972.

## 172.—ON SOME OF THE CAUSES OF PERICARDITIS, ESPECIALLY ACUTE RHEUMATISM, AND BRIGHT'S DISEASE OF THE KIDNEYS;

### WITH INCIDENTAL OBSERVATIONS ON THE FREQUENCY, AND ON SOME OF THE CAUSES OF VARIOUS OTHER INTERNAL INFLAMMATIONS.

By DR. JOHN TAYLOR, Professor of Clinical Medicine in University College, and Physician to University College Hospital.

[The principal object of the author, in this communication, has been to determine what are the principal causes of pericarditis, and to ascertain their frequency, both absolutely and relatively to each other.

The reader will find in 'Retrospect,' vol. 20, p. 62, some account of Dr. Taylor's views of the treatment of pericarditis by mercury, but we had not room in that volume to give further information of this gentleman's views. We, therefore, now do so, because we consider them very interesting and of much consequence.

The author does not profess to investigate *all* the causes of pericarditis. He has *first* inquired what were the causes *actually observed* in all the examples of the disease which have fallen under his notice; and, in the *next place*, he has investigated, more in detail, their *frequency*, both absolutely, and relatively to each other, as well as *some other of the circumstances* connected with each of the causes so observed.

*Lastly*, he has examined, incidentally, the influence of the same causes in producing inflammation of other internal organs, both in connexion with, and independently of pericarditis.

The cases of acute and severe pericarditis examined are thirty-five in number. Of these—

19 occurred in the progress of acute rheumatism.
10 ,, connexion with Bright's disease of the kidneys.
3 others may have had Bright's disease; but if not the cause is unknown.
1 occurred with malformation of the heart and consequent cyanosis.
2 were produced by the extension of inflammation from a neighbouring texture, in 1 from the liver and diaphragm, and in one from the *left* pleura.

Total ... 35

These *severe* cases of pericarditis may again be conveniently subdivided into two smaller groups.

1st. Those occuring in persons previously in good health or in the course of an acute disease; and 2nd. Those occurring in persons in bad health or in the progress of some chronic disease. A *remarkable* and *important* difference will be found in these two divisions, in relation to the causes of the disease.

Of twenty-nine cases examined, with a view to this difference, sixteen belong to the *first*, and thirteen to the *second*, of the two divisions just described.

Of the cases in the first class *all* were complicated with acute rheumatism, and *none of them*, so far as is known, with Bright's disease. Of the cases in the second class only one was complicated with acute rheumatism; whereas fully two-thirds were *known* to be associated with Bright's disease, and *all* of them *may* have been.

The *two* great causes of pericarditis, therefore, appear to have been acute rheumatism, and Bright's disease of the kidneys. The author next enters into some considerations intended to show that these two diseases owe their power of inducing pericarditis to the *same* ultimate cause, viz., an alteration in the composition of the blood; but he does not attempt to determine, whether the alteration in the blood be essentially the same, in relation to the production of pericarditis, in the two diseases referred to. If it be assumed that the pericarditis, which was associated with cyanosis, likewise depended upon the state of the blood in that disease, it will then appear that only two *generic* causes of the inflammation of the heart were observed in the thirty-five cases under consideration, viz., a morbid condition of the blood, and extension of inflammation from a neighbouring texture.

The author next examines the cases of adhesion of the pericardium, and of white spots upon it, with reference to the causes of the inflammation producing them; and he arrives at the conclusion, that in every case in which any information is given upon the subject, there had previously been either acute rheumatism, or pleurisy, or there was found actually existing, either Bright's disease, or some other disease of the kidneys.

The two chief causes of acute pericarditis which were thus observed, viz., acute rheumatism, and Bright's disease of the kidneys, are next examined with more detail.

I.—*Of Acute Rheumatism as a Cause of Inflammation in the Heart.*—The *frequency* of acute rheumatism, as an observed cause of pericarditis, has been already stated; it was observed in two-thirds of all the cases of the latter disease.

The complementary inquiry, *i. e.*, into the frequency of inflammation of the heart, in cases of acute rheumatism, remains now to be made.

Of seventy-five cases of acute rheumatism, treated by the author in University College Hospital, thirty-seven, or about one half, had morbus cordis of some kind or degree, the rest had probably none.

Among these seventy-five cases of rheumatism, there occurred six of acute pericarditis of considerable severity, besides two very slight cases. The proportion of the former, therefore, was one in twelve and a half cases.

In the same seventy-five cases of rheumatism, there were thirty-two cases of valvular disease of the heart, either old or recent, besides two known to be recent. There was, therefore, one case of valvular disease in about every two cases of rheumatism.

The author next compares these results with those of various writers upon the same subject, and from this comparison he concludes—

1. That acute inflammation of the heart has occurred less frequently, as a complication of acute rheumatism, in his experience than it has been believed to occur in the experience of those writers whose opinions seem to have been most generally adopted by the profession.

2. That the frequency of inflammation of the heart, even in his cases, has been such as abundantly to shew the great influence of acute rheumatism in its production.

An attempt is next made to ascertain the real amount and the causes of the difference between the observations of the author and those of the writers referred to. The result, as it respects most of these writers, may be briefly stated to be,

1st. *Of Pericarditis.* In those instances in which such data have been given as enable us to compare *similar* cases, the results are very nearly the same. In various instances, however, no comparison can be fairly made, either from the want of *figures*, from the mixing together of cases of endocarditis and of pericarditis, or from a great difference in the age of the subjects.

2nd. With respect to *Endocarditis*, the discrepancy is much greater than in the case of pericarditis, and one of the chief causes of the difference appears to the author to be, that most writers have given the proportion of cases of valvular disease in acute rheumatism in such a manner as implies (when it is not *directly* stated) that they were *all* cases of acute disease—omitting, therefore, to distinguish the proportion of them which were of older date.

The proportion of cases of valvular disease of all dates observed by the author is nearly the same as that observed by the chief writers referred to; but he attempts to shew,

1st. That the *greater* number of these are examples of *old* valvular disease.*

---

* In this discussion the condition of the heart is referred to in 1026 cases of all kinds of disease indiscriminately, to shew the *proportion* in which the heart suffered. —*See Note, p.* 494, *Med. Chirurg. Trans.*

2nd. That, at all events, in most cases it is very difficult to distinguish when the disease is recent and when old, and,

3rd. That, as far as he has been able to ascertain, acute endocarditis is less frequent than acute pericarditis in rheumatism.

The frequency of morbus cordis in chronic rheumatism is now inquired into and compared with that in acute rheumatism; and from this inquiry it appears,

1st. That the total number of cases of morbus cordis, old and recent, is nearly the same in the two kinds of rheumatism.

2nd. That *acute* inflammation of the pericardium and of the endocardium is much more common in cases of acute than of chronic rheumatism.

The *frequency* of other internal inflammations in the course of acute rheumatism is next examined and compared with that of inflammation of the heart, and the result is that the last mentioned inflammation exceeds every other in the *frequency* of its occurrence.

The next subject of examination is—*the circumstances which favour* the occurrence of inflammation of the heart in the progress of acute rheumatism.

1st. *Metastasis.*—Metastasis of the rheumatism did not occur in any one of the cases observed; hence it is inferred that this is not the ordinary nor even a frequent mode in which rheumatism produces cardiac inflammation. It does not, however, follow from these facts that metastasis never takes place, and it is attempted to be shewn that its occasional occurrence is both consistent with theory and established by observation.

In this part of the paper the author refers—

1. To some cases of rheumatism in which the inflammation of the heart appeared before that of the joints (p. 518).

2. To some cases of what has been termed "rheumatic fever without arthritis," *i. e.*, cases presenting all the symptoms of acute rheumatism except the affection of the articulations (p. 519).

3. To one of his own cases in which he thinks it probable that there may have been acute rheumatism, and in which there *was* pericarditis, but no affection of the joints throughout.

2nd. *Form of the Rheumatism.* —Adopting the divisions of rheumatism given in the treatise of Dr. Macleod, we find that all the cases of rheumatic pericarditis occurred in connexion with the *fibrous* as distinguished from the *capsular* form of rheumatism. In estimating the influence of this circumstance, however, it is necessary to remember that the fibrous variety of rheumatism is much more common than the capsular.

3rd. *Intensity of the Rheumatism.*—From the cases examined it appears to result that the violence and fatality of rheumatic pericarditis are generally greater in the cases in which the accompanying rheumatism is *very* acute than in those in which it is sub-acute.

Whether pericarditis be more *frequent* in the more severe than in the less severe form of rheumatism, the author's cases do not enable him with confidence to determine. *As far as they go,* however, they are opposed to such a view, for three-fourths of the examples of rheumatic pericarditis occurred in sub-acute rheumatism.

4th. *Stage of the Rheumatism.*—In more than half the cases of rheumatic pericarditis, the affection of the heart appeared on or before the fourth day of the disease. With one exception the pericarditis did not appear sooner in those cases in which it was very severe than in those in which it was much less severe.

5th. *Influence of Repeated Attacks of Rheumatism.*—In the cases examined, pericarditis was found to be both more frequent and more severe in the first than in subsequent attacks of rheumatism.

6th. *Previous Disease of the Heart.*—Ten out of fifteen patients had no previous disease of the heart, and among these were found all the most severe cases of pericarditis.

7th. *Age.*—Of fifteen patients, *nine*, or about two-thirds, were only twenty years of age or under; *five* were between twenty and twenty-six; and *one* was above forty.

8th. *Sex.*—Of fifteen patients, nine were males and six were females. It is necessary, however, to remember that rheumatism is more common among men than women.

9th. *Influence of Venesection.*—Twelve of the patients had not been bled before the pericarditis appeared, the remaining three were bled, *one* eleven days, *one five* days, and *one three* days, before the pericarditis supervened.

*Mode in which Rheumatism produces Pericarditis.*—Upon this question the author adopts the following *hypothesis* as consistent with all the facts he is acquainted with:

The cause of acute rheumatism is probably the presence of some morbid matter in the blood, which has an especial affinity for the fibrous and fibro-serous tissues of the body, and which, by fixing itself in one or more of these, induces various local inflammations. The similarity of the structures implicated is probably the reason why rheumatic pericarditis or endocarditis often occurs at the same time with or succeeds to rheumatic inflammation in the joints, just as rheumatic inflammation in *one* joint occurs with or succeeds to that in another; and the heart is more frequently (?) and more *severely* affected in *severe* cases of acute rheumatism. for the same reason that more joints are affected and more severely affected, and also that more fever is present in such cases: which reason may not improbably be a greater abundance of the materies morbi in the blood.

II.—*Of Bright's Disease of the Kidneys as a Cause of Inflammation in the Heart.*—We have already seen that of thirty-five cases of pericarditis Bright's disease was the only assignable cause of the inflammation in thirteen, or more than one third.

It now remains for us to institute the corresponding and complementary inquiry, into the frequency of pericarditis and endocarditis in Bright's disease.

1. In the bodies of fifty patients, who had either died of Bright's disease, or who were ascertained to have this disease in an advanced stage.

Acute pericarditis was found in 5 or in 1 out of 10,
and acute endocarditis „ 4 „ 1 „ 12.

2. On the other hand in 142 bodies, in which the kidneys were not affected with any appreciable disease,

Acute pericarditis was found in 4 or in 1 out of 35,
and acute endocarditis ,, 2 ,, 1 ,, 71.

Pericarditis and endocarditis, therefore, being four times more frequent in fatal cases of Bright's disease, than in fatal cases without renal disease, it seems clearly to follow that the influence of Bright's disease in producing these inflammations is *unquestionable* and *great.*

III.—The frequency of other internal inflammations in fatal cases of renal disease, is next examined and compared with their frequency in fatal cases without renal disease. From this comparison it appears,

1. That the proportional number of acute internal inflammations, exclusive of those of the heart, is *twice* as great in the series of cases with renal disease, as in that without such disease; the numbers being respectively ninety-six and forty-two per cent.

2. That the proportion of *patients*, likewise, among whom these inflammations were distributed, is greater in the former than in the latter series of cases; the numbers being respectively sixty and thirty-six per cent.

Hence, we may safely infer that Bright's disease has a great tendency to produce other internal inflammations besides those of the heart.

IV.—A further examination of the same facts, shews that the relative frequency of various internal inflammations, is different in fatal cases of Bright's disease and of other diseases, taken indiscriminately.

The following are the various inflammations inquired into, arranged in the order of their frequency, as they were calculated to be due to renal disease, or to the causes operating in other fatal diseases.

1. *Inflammations due to renal disease.* Cerebritis, pneumonia, pleuritis, pericarditis, endocarditis, meningitis, peritonitis.

2. *Inflammations independent of renal disease.* Pleuritis, pneumonia, peritonitis, meningitis, cerebritis, pericarditis, endocarditis.

V.—From a comparison of the numbers given in this paper, we may calculate the tendency to produce various internal inflammations of the causes operating in fatal cases of Bright's disease, as compared with those present in cases without renal disease.

If we use the term Bright's disease, to represent all the causes operating in fatal cases of Bright's disease, and then compare these with the causes in operation in *fatal* cases without any renal disease, we shall find that Bright's disease produces:—

1. *Endocarditis,* almost 5 times as often as all other causes put together.
2. *Cerebritis,* fully 3½ ,, ,, ,, ,,
3. *Pericarditis,* fully 2½ ,, ,, ,, ,,
4. *Pneumonia,* just ,, ,, ,, ,,
5. *Pleuritis,* just ¾ ,, ,, ,, ,,
6. *Meningitis,* 3 times less frequently than ,, ,, ,,
7. *Peritonitis,* 100 ,, ,, ,, ,, ,,

The author next enquires into the *comparative efficacy* of acute rheumatism and of Bright's disease, in producing pericarditis and other internal inflammations.

In comparing these two affections, we meet with some difficulty arising from the fact that, *one* of them is an acute disease, and is seldom fatal, whereas the other is chronic and generally fatal.

It appears to the author that the best way of avoiding this difficulty is, by comparing *fatal* cases of Bright's disease with ordinary cases of acute rheumatism.

If the object were to ascertain the proportion of cases, in which traces of previously existing inflammation were found, this method would be objectionable, because the one disease having run a much longer course than the other, it would have had much more time to produce any inflammation which it had the power to produce: but if cases of *actually* existing inflammation alone be counted, then the objection does not exist and the result should not be far from the truth.

Of seventy-five cases of acute rheumatism, eight were complicated with pericarditis acuta, or one in nine and a half.

Of fifty fatal cases of Bright's disease, five were complicated with pericarditis acuta, or one in ten.

Hence, Bright's disease in the advanced stage, and acute rheumatism appear to have caused acute pericarditis in an equal proportion of cases.

An examination of twenty cases of *old* adhesion of the pericardium, however, shews, what the considerations stated above might have led us to anticipate, that *old* adhesions of the pericardium have been produced twice as often by Bright's disease, as by previous attacks of acute rheumatism.

From considerations which could not readily be made intelligible in this abstract, the inference is next drawn, that acute rheumatism has a greater tendency to produce pericarditis than has Bright's disease in its *earlier* stages, and consequently that the tendency of Bright's disease to induce pericarditis and probably also other internal inflammations *increases* in proportion as the affection of the kidney is more advanced.

The conclusion thus arrived at is quite in accordance with the *modus operandi* of Bright's disease, in producing local inflammations which has been assumed in an earlier part of the paper; for, if this effect of renal disease depend upon a morbid condition of the blood, arising from the excessive accumulation of urea, we should expect the effect to increase in proportion as the structure and the functions of the kidneys, and the consequent composition of the blood deviate more from the healthy condition.

In conclusion some remarks are made upon the probable occurrence of pericarditis in *other blood diseases*, besides those observed by the author. (p. 566.)

Likewise some observations on the importance of the constitutional or predisposing causes of inflammation, as distinguished from the exciting causes.]—*Medico-Chirurg. Transactions, Vol. 28, p.* 453.

---

173.—*Discovery of the Magnetic Properties of Oxygen Gas.*—At the last monthly meeting of the Royal Institution, Mr. Faraday announced to the members present his discovery (the subject of a paper sent in to the Royal Society) that oxygen is magnetic, that this property of the gas is effected by heat, and he believes the diurnal variation of the magnetic needle to be due to the action of solar heat on this newly-discovered characteristic of oxygen—the important constituent of the atmosphere. We do not mean to give the above as the terms of Faraday's announcement, or as the exact facts of the conclusions drawn from his last experimental reseavches, but only as a foreshadowing of the new results and views of one of our most eminent British philosophers. We must add, however, that Becquerel also has recently directed attention to a somewhat similar conclusion; he communicated to the Academy of Sciences at Paris, that oxygen is magnetic in relation to the other gases, as iron is to the rest of the metals, and inferred that it is probable or possible (we have not the paper by us to refer to) that the diurnal variation may be connected with this property of oxygen.—*Med. Gazette, Nov.* 29, 1850, *p.* 953.

---

## 174.—FISTULA AND HÆMORRHOIDS TREATED BY THE PLATINUM WIRE MADE RED HOT BY A GALVANIC BATTERY.

(Under the care of Mr. Marshall, University College Hospital.)

Electro-magnetism and the purely electric shock have for some time past rendered great services in certain nervous diseases; surgical complaints seem now in a fair way of likewise deriving benefit from the galvanic force. A little time ago, we stated that a very obstinate ulcer at Guy's Hospital had been brought to cicatrization by an electric moxa. 'Lancet' Jan. 25, 1851, p. 90. We now have to put upon record an ingenious application of galvanism, devised by Mr. Marshall, for the cure of fistula and hæmorrhoids.

The peculiarity of the method rests principally upon the faculty of the red hot platinum wire to divide the textures as surely as a bistoury, and to do this without causing any, or but a very trifling, hæmorrhage. In fistula in ano, for instance, it is found that the charred surfaces throw off the eschar in a few days; that the healing process, without the aid of lint, commences at the fundus of the wounds; and that the whole tract soon closes up. We were somewhat anxious to witness this new application of the galvanic force, and having on the 29th of March seen three operations illustrating the same, we beg to subjoin a short description of them.

The first patient brought into the theatre was a man about thirty, who had been suffering for some time from fistula in ano. Various means had been resorted to in order to promote the healing of the tract, but to no purpose. Mr. Marshall therefore determined to lay open the intestine and fistula in the following manner:—A battery of six strong cast-iron cells, with zinc plates and copper connexions, was disposed close to the operating table; and the conductors (somewhat *thick* copper rods, to avoid the loss of galvanic force) were rendered flexible for about five or six inches, by an elastic tube filled with mercury. The pole held by the operator's right hand was in immediate connexion with the battery, but on the left side the current could be completed or interrupted by the intervention of a capsule filled with mercury. The extremities of the poles, slightly covered with mercury, were then connected with short holders, to which a platinum wire could easily be fixed, and when the assistant dipped the left pole into the mercury, the wire was seen almost immediately to become red hot.

Now the great advantage of using the galvanic force in this manner is, that the wire may be disposed upon the affected parts whilst *cold;* it is easily adapted by being flexible, and when it is so placed as to answer the operator's purpose, the circuit is completed, and the effect produced in the direction which the surgeon gives to the wire.

The patient having been put under the influence of chloroform, Mr. Marshall introduced one end of the platinum wire into the fistulous tract, and made it reappear at the anus; the two ends were then connected with the poles, the circuit completed, the wire became red hot, and was gently brought downwards, dividing all the interposed tissues, and cauterizing them at the same so effectually as to prevent any amount of hemorrhage. The only dressing used was a piece of lint dipped in cold water applied externally.

Mr. Marshall has found from previous cases, both in private and hospital practice, that the whole tract heals very rapidly from the bottom after the casting off of the eschar, which separation generally takes place in a few days.

The second patient was affected with external hæmorrhoids, connected both with the verge of the anus and with the lower portion of the mucous membrane of the rectum, the protruding mass being as large as a pigeon's egg. Chloroform having been administered, the hæmorrhoidal tumours were drawn out by a peculiar kind of forceps, and the heated wire slowly drawn across the pedicle of the mass. This was repeated for different portions of the growths, and where a little oozing of blood took place, the wire was made to cauterize the part slightly, which measure at once stopped the flow of blood. Mr. Marshall stated that it was important that the wire should act rather slowly, as a rapid section was likely to allow of a little hemorrhage. The time taken to sever a tumour did not however, as far as we could judge, exceed forty seconds.

The forceps to which we just alluded were constructed according to Mr. Marshall's directions; they differ from the usual instrument in having a ring about an inch in diameter at the end of each branch; when the forceps are closed, the rings are superposed, and gain a very firm hold of the part to be secured. Mr. Marshall prefers these forceps to the vulsellum.

The third patient was affected in the same manner as the last, the extruding mass of hæmorrhoids being, however somewhat larger and more congested. the operation was conducted precisely in the same manner as in the second case; here, however, either from the congestion being great, or the division a little too sudden, the hæmorrhage required the tying of a vessel, which latter was so large that the cautery applied to it could not control the bleeding.

Mr Marshall took occasion to remark to the pupils that these were tentative operations, and that further trials would be necessary to ascertain in what cases this peculiar mode of simultaneous excision and cauterization was to be used. It was certainly the neatest and most elegant manner of using the actual cautery that had yet been devised. He was inclined to think that the chance of hæmorrhage would be much lessened if the wire were somewhat thicker than the one he had just used. Mr. Marshall fixed such a wire to the conductors, and when the circuit was completed, it became red hot, but in a little longer time than the other had taken. Mr. Marshall thought that the method just described would eventually be peculiarly applicable to fibrous tumours of the uterus, and stated that he is having a battery constructed, where the cells would be managed in such a manner as to be quite ready for use by being dipped into the diluted acid; that the apparatus might then be put entirely out of the patient's sight by being placed under a seat or sofa, and that nothing but the conductors need be seen.

Mr. Marshall, subsequently to the operations, placed a dog under the influence of chloroform, and slowly divided the tongue half across with the platinum wire, without causing any hæmorrhage. This experiment went far to show that the thicker wire which was used in this instance would hold out a reasonable chance of dividing and cauterizing without any loss of blood. We should mention that Mr. Marshall first used the galvanic force in the manner above described, in a very obstinate case of fistulous opening in the cheek of a young man, which had refused to cicatrize under every imaginable kind of treatment. As the tract was about one inch and three-quarters long, and somewhat sinuous, a wire heated in the usual manner must get almost cold before it reached the whole extent of the tract; this objection was, however, entirely removed by the use of a wire introduced cold, and then heated by the galvanic battery. The success obtained in this latter case, which had almost been despaired of, was the first step in the series of cases which Mr. Marshall has since treated with very favourable results. We subjoin the results of the above described operations:—

Case 1.—*Fistula in ano.* The sloughs began to separate on the second day; on the fourth, the wound was quite clean, the granulations large and the edges already rounded, and beginning to cicatrize. Until the sloughs separated there was some dragging and aching pain which, however, was not at all to be compared to the suffering after the division of fistula by the knife an operation which the patient himself had previously undergone. On the second and third nights, an anodyne was given, owing to some restlessness, but the draught was not repeated afterwards. A little tenderness was noticed in the groin on the third day, but this passed off after a few hours. In other respects, the patient made a steady recovery; in three weeks, the bottom of the wound only remained un-cicatrized, and now the fistulous tract is quite healed up.

Case 2.—*Hæmorrhoids.* The affection was here of twelve years' standing; the patient had had a great deal of pain and inflammation, as well as attacks of hæmorrhage. The final separation of the sloughs took place in passing a motion on the sixth day, accompanied with a severe but transient pain, and a slight oozing of blood. After this, he was quite easy. On the eight day the patient sat up, and on the tenth, he resumed his work as a saddler, at home.

Case 3.—*Hæmorrhoids.* This case was of fifteen years' standing; and the patient had frequently suffered from severe inflammation, and had great losses of blood. He had aching pain at intervals for five days after the operation, as well as some tenderness in the groins. A portion of loose integument not removed in the operation, also swelled and became tender. The patient had severe fits of flatulence, which were generally very painful, lasted about a quarter of an hour, and then disappeared suddenly. On the third day he evacuated some clots of blood from the bowel; on the fifth, a fœtid mass of small size came away, and he was afterwards free from all pain, except in the swollen piece of loose skin, but in two or three days the pain subsided, and on the sixteenth day he went out to work as a painter.—*Lancet, May* 17, 1851, *p.* 546.

## 175.—ON THE NATURE AND TREATMENT OF ARSENICAL POISONING.

By William Odling, Esq., F.C.S.

[In a paper read before Guy's Hospital Physical Society, Mr. Odling states it as his opinion that the only plan of treatment to be depended upon is the removal of the poison physically from the stomach, and that this is best effected by using the double-action stomach pump. He next considers the remedies to be used in cases of arsenical poisoning, and first, of the hydrated ferric oxide, or sesquioxide of iron. This, by being administered in the state of a moist magma, suspends the poison, but its power is extremely weak, and the compound formed with it is perfectly soluble in the gastric juice, and has been found to possess poisonous properties. Magnesia, so much vaunted at one time, is even less fitted to act as a chemical antidote.]

Numerous other chemical antidotes have been proposed, but they have not proved of sufficient interest or importance to warrant any further allusion being made to them. And now I wish to direct your attention to a few experiments which were performed with the following objects:—Firstly, I was desirous of discovering some compound containing arsenic, from the chemical relations of which an innocuous character might be deduced,—a condition which subsequent experiment should confirm; and, secondly, to ascertain some means by which powdered arsenious acid in the stomach might be converted into this innocuous compound. After some consideration, I arrived at certain conclusions founded on the well-known chemical analogies between arsenic and phosphoric acids. The sesqui-arseniates of iron and alumina have been but partially examined: they have been found to correspond in their reactions with the corresponding phosphates: they are perfectly soluble in hydrochloric acid, but not at all so in acetic acid, unless it be very concentrated, and then only to an inconsiderable degree; and, as far as my experiments went, the sesqui-arseniate of chrome appeared to act in a similar manner. Therefore, from their chemical relations, I expected that these sesqui-arseniates would prove, if not entirely harmless, at least much less dangerous than ordinary white arsenic, when administered either with an excess of the sesquioxide, upon which the action of the gastric juice might be expended rather than upon the arseniate, or with an alkaline acetate, which, by reacting upon the gastric secretion, would set free acetic acid, in which these sesquiarseniates are insoluble: and I tried the following experiments:—Some sesquiarseniate of iron was prepared by adding to a solution of neutral arseniate of potassa a solution of neutral sesquichloride of iron, until no further precipitation took place, and the liquid contained an excess of iron. The whole was thrown on a filter washed with cold water until the washings came away pure: the precipitate, which was nearly white in colour, was dried at a temperature under 212° F. Of this powder five grains were taken, and mixed with ten grains of recently-precipitated sesquioxide of iron that had been dried in a water-bath, the whole rubbed up with a little water and mucilage, and administered to a full-grown rabbit. The animal was carefully watched for a fortnight, during which time no ill effects were observed. Specimens of the fæces passed during several days succeeding the administration of the arsenic, were examined for that substance by Marsh's test, and in every instance abundant evidence of its presence afforded. In another experiment, some arseniate of ferric oxide was made by adding a solution of arseniate of potassa to a mixture of the solutions of sesquichloride of iron and acetate of ammonia. A brownish white precipitate was produced, which was well washed until nothing further came away. It was then dried in a water bath. Ten grains of this powder were taken and mixed with ten grains of sesquioxide of iron (recently precipitated, washed and dried at 212° F.), and five grains of crystallized acetate of potassa: the whole administered to a dog: no vomiting nor purging, nor any recognisable effect on the dog's health, was produced. The fæces he passed during the several days succeeding the administration of the arsenic were black in colour, normal in consistence and odour. Several different specimens were taken and examined by Marsh's test. Arsenic was found in all the portions tested. The presence of iron was also abundantly evident. In another experiment sixteen grains of the same sesquiarseniate of iron were mixed with four grains of dried hydrated ferric oxide, and four grains of acetate of potassa; the whole made into a bolus, and administered to a dog two hours after a meal: no recognisable effects were produced; the dog did not vomit, was not purged, had no abdominal tenderness. The dose was given at 10 o'clock, A.M. During the ensuing night he passed a motion in which the presence of arsenic was proved. The next day's fæces contained arsenic in abundance: in the third day's excrement it was likewise present, but in the fourth day's could not be detected. The animal matter of the fæces was destroyed in the manner recommended by Fresenius and Von Babo, and the clear solutions tested by Marsh's process. In other experiments which I shall presently detail, arseniate of alumina was administered to dogs without any poisonous effects following. Therefore I conclude, that if in the stomach we could convert the arsenious acid into one of these sesquiarseniates, we should render it, if not entirely, yet comparatively, innocuous. Now arsenious acid is readily converted by most oxydising agents into arsenic acid, which, in the presence of the above-mentioned basis, forms the insoluble sesquiarseniates.

As oxydising agents—manganic, permanganic, ferric, and chromic acids, were employed; also the oxychlorides of calcium and sodium (hypochlorites), and mixtures of hydrochloric acid with chlorate of potassa. Numerous experiments were made, all showing more or less favourably, that arsenious acid could readily, under divers circumstances and temperatures, be converted into arsenic acid. But the substances I at last fixed upon as being most suitable for my purpose, were, the chromate of iron or of alumina, and a mixture of permanganate of potassa solution with hydrate and acetate of ferric oxide, or with hydrate and acetate of alumina; giving the preference, however, to the last-mentioned combination; the effects of which I shall now briefly describe.

The permanganate of potassa I use is the crystallised permanent salt, made after Gregory's process, having the formula—$KO,M_n^2O^7$. The aluminous salt is made by precipitating the hydrated alumina from the chloride, by ammonia, well washing and draining in a filter. The magma left is formed into an emulsion by agitating with a concentrated solution of the aluminous acetate. The aluminous is preferred to the iron compound, in consequence of its gelatinous condition being particularly suitable for suspending the arsenic. When the permanganate of potassa solution is mixed with the aluminous compound, slow decomposition takes place: so that it is better to keep the substances separately, and to mix them when required for use. When a solution of permanganate of of potassa, if ever so diluted, is added to an acid neutral, or alkaline solution of arsenious acid, the colour of the permanganate is at once destroyed, and the arsenious becomes converted into arsenic acid. The reaction also takes place, though more slowly, when powdered arsenious acid is employed. When the antidotal mixture is added to solutions containing arsenious acid, the whole of the poison is converted into the insoluble sesqui-arseniate of alumina; and if it be agitated with powdered arsenious acid, the pulverulent molecules become converted externally into the sesqui-arseniate, and any solution of the poison effectually prevented. Every equivalent of permanganate of potassa is capable of converting two equivalents of arsenious into arsenic acid, which, calculated upon the atomic weights, gives us four parts of the permanganate to five of arsenious acid, nearly.

I will now briefly proceed to examine this antidote after the manner indicated by Orfila. According to this chemist, the first property that an antidote should possess is "that it should be taken in large doses without danger." Now the permanganate of potassa is undoubtedly an irritant, and possibly a corrosive; but, when administered in a dilute condition, no ill effects follow its ingestion. I took a mixture of ten grains of permanganate of potassa, dissolved in a quarter of an ounce of water, mixed it with a fluid ounce of the aluminous emulsion, and made the whole up to two fluid ounces, and then administered it to a dog at ten o'clock one morning. At four P.M. he had a relaxed motion, in which manganese was detected; but neither before nor after the motion did he appear to suffer any inconvenience. Now in administering the antidote by the stomach-pump to a human being, this quantity of the permanganate might easily be mixed with half a pint of the aluminous emulsion, under which circumstances its irritant action would be very trifling

—not more than that of an ordinary sulphate of zinc emetic. The second property of an antidote is, "that it should act upon the poison, whether liquid or solid, at a temperature equal to or below that of the human stomach."

I have before explained that this antidote is not administered with the view of acting upon solid arsenic; but its complete action upon liquid, and incomplete action upon solid arsenic, take place readily at temperatures considerably below that of the stomach. The third property is, "that its action should be rapid." The action of the antidote upon solid arsenic is gradual,—upon liquid arsenic (for which alone it is intended), immediate. The fourth property is, "that it should be capable of combining with the poison, although enveloped in mucus, blood, or other substances contained in the stomach." It is probable that the antidote would act in spite of these conditions; but, if administered with the objects above pointed out, its action would be unnecessary, if the poison were so enveloped as to be incapable of solution or absorption. The last property is, "that it should entirely destroy the deleterious properties of the poison." That the result of the action of the antidote upon arsenious acid is a comparatively innocuous compound I think has been proved; but, with the view of still further strengthening this position, I performed the following experiment upon two separate occasions:—I took twenty grains of powdered arsenious acid, mixed it with a portion of the antidote containing ten grains of permanganate of potassa, well agitated and gently warmed the mixture, then threw the whole on a filter. The filtrate was of a bright red colour, not containing a trace of arsenic: the precipitate was mixed with milk, and administered to a dog. In the first instance no ill effects were observed after a lapse of five hours from its exhibition. During the night the dog vomited. The matters ejected and his fæces were accidentally thrown away, and consequently not examined. During the ensuing day the dog appeared lively and well, nor did he afterwards manifest any uneasiness. In the second instance the precipitate was mixed with milk, and exhibited to a dog three hours after a meal: he was carefully watched. Four hours after its administration he vomited, and again in about an hour after that. The matters vomited contained arsenic. Neither before nor after the vomiting did he appear uneasy; he was playful, active, and ate everything set before him: the fæces he passed the next day contained arsenic. These experiments were not so conclusive as they were intended to have been, owing to the occurrence of vomiting, so readily excited in dogs; but they must be looked upon favourably as far as they go: the dogs recovering in both instances is something more than a coincidence.

In conclusion, then, it is evident that the external conversion of the pulverulent molecules of arsenious acid into the sesqui-arseniates of iron, alumina, or chrome respectively, and the precipitation of arsenical solutions in the form of these compounds, affords a rational expectation of effecting as much benefit as can possibly accrue from the use of chemical antidotes, and that this conversion can be produced by a mixture of the permanganate of potassa with the acetate and hydrate of alumina, or with the acetate and hydrate of ferric oxide, though doubtless more appropriate means of effecting this action are to be discovered: the action of the chromates of alumina and ferric oxide being particularly worthy of consideration.

And finally, that this antidote, though not by any means to be relied upon as a specific for arsenical poisoning, appears to act more efficaciously than any other which has hitherto been proposed. The subject is not brought forward so much with the view of enforcing the advantages of these antidotes, as of directing attention to a further investigation of the matter.—*Med. Gazette, May* 2, 1851, *p.* 756.

## 176.—ON FATTY DEGENERATION OF THE PLACENTA.

By Dr. Robert Barnes, London.

[Two cases are related by the author, of premature labour occurring at the seventh month. In both the placenta was studded with fatty masses, apparently isolated by the surrounding structures. These appeared to be the result of fatty deposit or degeneration in the proper placental structure. In one case, branches of the umbilical vessels in an atrophied condition were traced through several of the fatty masses. From Dr. Hassall's microscopical examinations, it was proved that the placental villi, chorion, and umbilical capillaries, were all more or less altered and studded with minute spherules of oil. In some parts the process had extended to complete disintegration of the original structure; and in those parts appearing healthy, evidences of fatty deposit and degeneration being in progress were observed. The occurrence, however, of a certain proportion of oil in sound placentæ had been previously determined as a normal constituent.]

With the exception of a case of fatty degeneration of the placenta, recorded by Professor Kilian, and of which an abstract appeared in the 'British and Foreign Medico-Chirurgical Review,' for January, 1851, no distinct recognition of the nature of the affection is to be met with. The author regards the fact of the occurrence of this change of structure in the placenta as highly interesting both to the pathologist and to the obstetric practitioner. It promises to throw light on the disputed question of hereditary transmission of predisposition to this disease. It shows how rapidly such change of living structures may take place. The conversion of portions of placenta into solid unyielding structure, and the consequent imperfect attachment of these portions, and of the surrounding healthy structure, to the womb, give rise to hemorrhage, and premature labour may occur possibly during the life of the child. A more frequent occurrence probably is the destruction of the fœtus in consequence of imperfect nutrition, and by a process of slow asphyxia. Fatty degeneration may also cause abortion in the early periods, the ovum being affected. With reference to treatment, it was suggested whether the known disposition to this destructive change, if established by the observation of preceding pregnancies, might not warrant the induction of premature labour, with the view of anticipating the period at which the fœtus would almost certainly be destroyed if left in the womb. Some suggestions were also offered with reference to the general treatment to be adopted with a view of counteracting the disposition to fatty degeneration before and during pregnancy.

[Dr. Quain remarked that the author had mentioned fatty deposition and fatty degeneration synonymously, but these were processes entirely distinct in their nature and effects.]

The deposition of fat from the blood led to the formation of adipose tissue; fatty degeneration, on the other hand, was a result of the disintegration of albumen and fibrin, and of the tissues into the formation of which they entered. There was here no adipose tissue, but a mere aggregation of granular particles. This disintegration may be witnessed in the formation of adipocire, or it may be made to occur experimentally in dead flesh, and the changes could be then followed by the microscope. It may likewise be observed in various albuminous, fibrinous, and other products in the living body, but beyond the sphere of vascular action, and also in various tissues and textures, the nutrition of which had been modified by inflammation, obstruction to the blood-vessels, &c.

[Dr. C. J. B. Williams said that the whole topic of fatty degeneration was one of growing importance, not only as constituting a serious lesion in itself, but also as forming a remarkable element in several other morbid processes, and in cachectic states. Fatty degeneration was not an independent and original vital process, like that causing hypertrophy, or malignant disease, instead of being, as it truly is, a chemical transmutation of fibrinous and albuminous deposits or textures, consequent on a failure of that degree of the nutritive process necessary to maintain a higher order of structure.]

One of the earliest observers who had set this matter in its true light was his friend Mr. Gulliver, who, in his paper on the 'Atheroma of Arteries,' published in the Society's 'Transactions,' and subsequently in his editions of Gerber and Hewson, had made known many examples of fatty degeneration of deposits and textures, and had suggested the probability that the change is chiefly chemical. About the same time, he (Dr. Williams) had compared this fatty transmutation in the living body to the conversion of dead flesh into adipocire; and he had cited numerous instances, in which the products of inflammation and obstructed natural tissues undergo more or less of a similar change during life. The researches of his friend Dr. Quain seemed to him (Dr. Williams) to have completely established this view, and to have further traced many of the modes in which impeded nutrition promoted the degradation of the natural tissues into molecular fat. It seemed to him (Dr. Williams), therefore, that it might now be received as a general law, that whenever tissues or deposits are imperfectly supplied with blood, yet are sufficiently nourished to keep them from becoming dry or decomposed, there will be found the process of fatty transformation, more or less resembling the same change which takes place out of the body. Thus, imperfectly-organized lymph in the pleura, pericardium, or peritonæum; lymph in the texture of the lung or of cellular membrane; fibrinous clots in vessels; blood-clots in the brain; soft, recent enlargements of complex organs, as of the liver, kidneys, testicle; crude tuberculous masses, and torpid growths; non malignant and malignant, had been repeatedly found by him (Dr. Williams) to afford, under the mscroscope, the clearest evidence of falling under this law. This law is, in fact, a most satisfactory clue to much that has been hitherto obscure in pathology, and unravels much of the mystery of the processes of softening of tissues, maturation of abscesses and tubercles, the breaking down of consolidated masses in spongy organs, and the weakening and wasting of muscular and glandular structures. But this view would teach us to look beyond the mere fatty degeneration itself to the impaired or obstructed circulation, and sometimes altered condition of blood, which was its cause.

[Dr. Barnes remarked that he had not been convinced of the necessity for the distinction which Dr. Quain had drawn between fatty deposition and degeneration. As he (Dr. Barnes) understood the term, and as he had observed the affection, he was led to believe that deposition and degeneration were different stages of the same affection.]—*Lancet, May* 24, 1851, *p.* 574.

---

177.—*On the Treatment of Cases of Syphilitic Lepra.*—By DR. R. B. TODD, F.R.S.—[We must first eliminate or endeavour to neutralize the poison upon which the disease depends, indeed, these indications may be fulfilled together, the first by promoting the excretion of poisonous matter from the system, and the second by the administration of such remedies as may deprive the poison of its virulence. As an antidote we may give mercury and iodide of potassium; as eliminatives, we pay attention to the general health, promoting the excretions from all the emunctories by means not tending to weaken. Five graius of blue pill may be taken night and morning, so as to affect the system slowly and gradually; and the mercurial influence is aided by giving iodide of potassium, which also seems to exercise some specific influence of its own.]

With reference to the administration of both these drugs I have this remark to make, that our rule should be, *festina lente*. It is when too much is thrown into the system, with a desire to produce a rapid effect, that certain accidents and untoward events are apt to arise. Hypersalivation, violent iodism, irritation of the bowels, of the skin, peculiar nervous affections (erethism), are caused by the too free and too rapid introduction of these powerful poisons into the blood. It is also very advisable in many instances to withhold for a time the administration of one or both of these remedies, renewing them as occasion may suggest. And on administering mercury, it is often much more desirable to introduce it by the skin than by the stomach.

The cure of syphilitic lepra is a slow process, and therefore, when you take in hand a patient labouring under this disease, take care to prepare him beforehand for the tardiness of the process. A patient cured of syphilitic lepra within three months will have no cause to complain; but much more frequently a longer time than that is necessary.

And you will expedite matters if, at the same time you administer antidotes, you promote elimination by good diet, the occasional use of the warm bath, from time to time the use of aperients, &c.

Exactly the same principles of treatment are applicable to lepra and psoriasis. You will find as antidotes, arsenic, iodine, mercury, tar, and perhaps also alkaline remedies, as the liquor potassæ; and for purposes of elimination we may purge, or sweat, or use diuretics, or cause the patient to bathe.

Of all the antidotes I prefer tar, because I am quite sure that if it does no good it will do no harm. I cannot say this of mercury or iodine, and still less of arsenic.

You all know the accidents which can happen to interfere with the administration of mercury and iodine. Arsenic is apt to produce a peculiar cachexy, with irritable stomach and emaciation, at the same time that the spots of lepra may disappear, as they most frequently do, or they may continue untouched.

Arsenic is a two-edged sword, which those who use it had better handle with great circumspection, but which is better left in its sheath. Its efficacy is not so certain that we should be very anxious to use it. I have seen lepra return while the patient was still using it; and I have often seen it return very soon after the arsenical course has been discontinued. The most safe and prudent way of using it is that proposed by Mr. Hunt,—namely, to give it, not in increasing, but in decreasing doses, commencing with five minims of Fowler's solution, and aiming, not so much to give a large quantity, as to administer it for a very long time.

Tar is, as I have said, the safest remedy. The proper kind is the wood or Archangel tar,—*the pix liquida.* It may be given internally in capsules, or applied externally, or both. We have been administering it to Cope in both these ways. He takes fifteen or twenty minims three or four times a day, and at the same time he is tarred all over and lies in tar sheets. This latter part of the practice is scarcely applicable to private practice, but I believe it to be a most useful measure. About once a week Cope uses a warm bath to wash off the tar, and to enable to ascertain what progress is being made in the cure.

Under this treatment Cope is making decided way; the scales clearing off and many of the spots are evidently healing in thec entre, where healthy skin is appearing. Allied to the tar is the remedy lately much commended for external use by Devergie, the *huile de cade,* which is obtained by distillation from the juniper.

O'Farleigh has been treated by good diet and moderate purging, with a little blue pill at night, and with the white mixture, consisting of Epsom salts and magnesia, in the morning, and warm bathing on alternate nights. He is improving very manifestly under this treatment.

No plan of treatment that I know of effects a radical cure of lepra or psoriasis. Whatever plan you adopt, the disease, whether it be antidotal or eliminative, is apt to return again. This is an additional reason why you should observe the caution I have given you,—namely to prefer the plan which will do no harm. You are not justified in running the risk of damaging your patient's constitution by using a remedy which at best can only procure a temporary cure.

Something, however, may be done to retard the recurrence of the malady. The continuance of eliminative measures, and the close observance of hygienic rules, will accomplish this object. Warm or cold shower baths once or twice a day, thorough good friction of the skin, good wholesome diet, and plenty of air exercise, are the means most likely to conduce to this end. In persons of delicate and strumous constitution, the cod-liver oil is very useful during the continuance of the eruption, and for some time after.

No treatment is so hard to carry out as that which enforces rigid and self-denying rules of health; and you will constantly find it easier to induce patients to swallow doses of nauseous and even poisonous drugs, than to take active exercise, or submit to a shower bath. The water-cure establishments, of which so many are now found in different parts of the country, are to a certain extent, useful for complaints of this kind; they are medical hotels, in which patients must do as they are told; they must be washed at certain times, and fed at certain times and on certain articles of food. But even all this washing does not cure lepra, for it returns as soon as the patient leaves the hotel, unless he continues to observe the discipline which alone can keep the malady under. A patient who has the lepra ought to know that he carries about in his system a dormant leaven, which needs but little to excite it to actual fermentation.

It is well for you also to bear in mind that it is no uncommon thing for lepra or psoriasis to disappear without any treatment, and to return again, it may be, after a lapse of a considerable time. This is a feature of the clinical history which ought not to be lost sight of in estimating the value of different kinds of treatment.—*Med. Gazette, May* 16, 1851, *p.* 841.

---

178.—*Traumatic Tetanus Cured by Simple Local Treatment.* By Mr. EDDOWS.—[This case occurred in a labourer, aged 30. Fourteen days previously he had injured the ball of his thumb by striking his hand against a large packing needle. The wound was healed on the tenth, though a chemist had applied a suture and strapping. Three days after the healing, he noticed a stiffness of his jaws, and "all night felt a stitch or catch under the right shoulder-blade, sometimes going through to the sternum. When admitted into the dispensary, he could open his mouth to one and a half inches; he had occasional cramps in the wounded hand; he could close his hand quickly, but extension was made with pain and slowly. The cicatrix was tender in one part. A portion of the cicatrix was now removed, including the tender part; and in the evening half a grain of the acetate of morphia, diluted with a little chalk, was applied to the wound, over which was placed a poultice. The tongue was clean and the pulse unaffected. On the second day, a blister was applied to the right hand, and the morphia applied to the denuded surface. The jaws were closer, and he complained of pluckings in the hand and arm; occasional feelings of smothering in the chest. And he says that when he closes his mouth firmly, it gives his hand pain. On the fourth, he is stated to be much the same. On the fifth, the spasms of the hand were fewer, and there was no pain in the hand when quiet. On the sixth, the jaws were found to be still the same, though the hand continued better. He was now ordered to paint the tinct. of aconite over the flexors. On the 7th, the jaws remained in the same state, and he was ordered]

To have ♏v. tinct. aconite on the wound, and then the morphia as before.

8th day.—Two hours after the application of the aconite and morphia, felt more ease than at any previous time; spasms fewer; says "the tightening of the chin is less;" jaws the same; bowels open; was not awoke, as before, by the plucking; an occasional stitch from sternum to scapula; ♏x. tinct. aconite to the wound.

9th day.—Still better; jaws a little more separated; pluckings confined to the wrist and hand. ♏xv. tinct. aconite.

10th day.—Blister on back of right hand nearly healed; last night, for an hour before the wound was dressed, for the first time had pluckings of legs, "as though they were drawn to the bed;" had also some pain at the lower part of the belly; jaws the same.

11th day.—The surface where the blister had been was quite healed, having no absorbing surface; had the pains in the legs last night, which made him shout loudly; cutting pain between the shoulders; feels "as though his loins were pulled together;" abdominal muscles rigid; right side more affected than the left; jaws the same. To have a blister applied above the situation of the former one.

12th day.—Dressed the blistered surface with the morphia, &c.; and, in an hour or two, was free from all his pains, and quite comfortable.

13th day.—The wound resulting from the removal of the cicatrix being nearly healed, a blister was applied on the wrist above for the application of the morphia, &c.: had no return of the attacks, except occasional twitching. Took quinine and valerian, and on the

18th day.—Ate ℔ss. of beef steak, and was lost behind the clouds of his own pipe.

There remained a contraction of the flexors, but this was removed by a splint; but the power of using the muscles has not yet returned.

There are many points of interest in this case, and I would wish to call attention to one of them.

*This man's symptoms first came on after the healing of the wound,*—a circumstance by no means unusual, though I am not aware that any reasons have been given why such should be the case. I think that one of Dr. M. Hall's experiments, showing that the extreme terminations of nerves possess the excito-motory power in a much higher degree than the trunk, will help us to furnish an explanation. "If," says he, "after removing the head of a frog, we divide the integuments along the back, and raise them by means of the forceps, we observe the *trunks* of many cutaneous nerves. Now, if we irritate these trunks, no movements follow; but if we irritate the cutaneous texture on which they ramify, movements of a *very energetic nature* are produced." Now in the healing process of a wound it must be evident that the extreme distributions of the cutaneous nerves would only be involved when that process was nearly or wholly completed. And may it not be the involving these, the more easily excited terminal branches, that is the starting point of the disease?—*Med. Gazette, May* 2, 1851, *p.* 756.

179.—*On the Structure of the Membrana Tympani of the Human Ear.* By Joseph Toynbee, Esq., F.R.S., Aural Surgeon to St. Mary's Hospital.—[The following is a most important addition to our previous knowledge of this structure, obtained by the persevering enquiries of Mr. Toynbee.. He states that]

Between the epidermoid and radiating fibrous layers of the membrana tympani, there is a distinct and complete lamina of membrane which is continuous with the dermoid layer of the meatus. The presence of this membrane, to which, on account of its structure and functions, I have given the name of dermoid layer, is best demonstrated by carefully dissecting, under water, the membranous meatus from the upper surface of the osseous tube, as far as the attachment of the membrani tympani; at this point the periosteum of the meatus is seen to become continuous with the radiate fibrous lamina; this being cut through, the dermoid layer is seen passing down over the outer surface of the radiate fibres, and separating them from the epidermis. If the upper portion of this layer be drawn gently downwards by one hand, by means of a fine needle in the other, the delicate cellular tissue connecting it to the fibrous lamina can be broken up, and it may be removed entire. The presence of the dermoid lamina may also be shown by the introduction of a fine bristle between it and the radiating fibrous layer, at the superior part of the membrana tympani, and then by passing it down, the cellular tissue is lacerated. In a healthy state, when uninjected by blood or by artificial means, the dermoid lamina is thin and transparent; examined by the microscope, its structure is found to resemble areolar tissue. When injected, this membrane is observed to have numerous blood-vessels ramifying through it, and they form an elaborate plexus; when these vessels are enlarged, they give the red appearance to the surface of the membrana tympani which is so frequently met with during life. It is upon the supply of nerves to this membrane that the exquisite sensibility of the membrana tympani depends. A knowledge of the existence of the membrane here described is of interest to the anatomist, who recognises in it the secreting organ of the epidermoid layers of the membrana tympani; and to the surgeon, who by its presence is able to understand phenomena occurring in certain diseases of the ear which have been hitherto incomprehensible to him.—*Lancet, May* 10, 1851, *p.* 520.

## 180.—ON THE EMPLOYMENT OF THE TINCTURE OF CANTHARIDES IN OBSTINATE ULCERS.

By John Tait, Esq., H.E.I.C.S., Madras Retired List, Dunse, Berwickshire.

[Although it has been much advocated, the application of the tincture of cantharides in chronic ulcerations has not been much adopted in practice, Mr. Tait believes it well deserves attention. He says,]

About five weeks since, a poor man from a neighbouring county placed himself under my charge respecting a severe ulceration of the right leg, from which he had suffered for eight months, during which period he had been treated unsuccessfully by five different medical men. On examination, I found the leg from the knee to the ancle to be nearly one continued mass of ill-conditioned ulceration, the small portions of skin still retaining integrity, being much congested, and of a livid purple colour. A profuse watery and offensive discharge, tinged with blood, issued from the affected parts; the edges of the sores were indurated and irregular, the ground of the various ulcers being deep and "scooped" out, and formed apparently of condensed cellular membrane. They had an angry and irritable aspect, and were attended with very great pain. The whole limb was much swollen. The patient had suffered from syphilis and syphilitic iritis, and as he still experienced nocturnal pains in the sound limb, I considered his constitution to be tainted by secondary symptoms. He complained of great weakness, and exhausting diarrhœa, and other symptoms of hectic. The following was prescribed:—Mercury, with chalk, five grains; sulphate of quinine, one grain; powdered opium, half a grain: mix for a powder, to be taken thrice a day. The sores to be fomented three times a day with a strong decoction of poppy-heads; a poultice to be applied in the intervals; absolute rest, and elevated position of limb enjoined. The powders were continued until the gums were affected, after which the diarrhœa ceased. The limb was now less swollen and painful; warm-water dressings were substituted for the former local treatment employed, and the sores were bathed with a solution of the chloride of lime. The following was taken internally:—Iodide of potassium, one drachm; compound tincture of cinchona bark, two ounces; water, fourteen ounces: mix. One ounce of the mixture to be taken morning, noon, and evening. As soon as the pain subsided, an ointment composed of balsam of Peru was exchanged for the water-dressing, the other remedies still being employed.

The tumefaction of the limb was now much reduced, and the sores had lost all traces of irritability, but remained stationary, and evinced no disposition to heal, the wounds being relaxed and gaping, with no perceptible appearances of granulations. He was now ordered to take ten drops of the tincture of cantharides with each dose of the iodide of potassium, the same topical applications being persisted in. Three days afterwards, the ulcers began to contract, healthy, firm lymph was effused round the edges, and red granulations appeared in the wounds. The iodide of potassium, with the chloride of lime wash, was now omitted, and he was directed to use the following:—Tincture of cantharides, twelve drops, three times daily, with the following draught:—Diluted nitric acid, twenty drops; compound tincture of cinchona, two drachms; water, one ounce. Red lotion. Continue the use of the balsam of Peru ointment.

Union continued rapidly to progress, and the ulcers were healed in a fortnight from the date of the commencement of the tincture of cantharides.

*Remarks.*—Such was the progress and issue of a case that had baffled every previous treatment employed. It affords one of many examples I could bring forward of the great utility of cantharides in indolent ulceration, dependent either upon atony of the engaged parts, or system generally.

In 1845, while resident in Burmah, my attention was directed to the treatment of the ulcers met with in that country, and which had long been found difficult to heal by different medical gentlemen stationed upon that coast. I drew up a paper, exhibiting the appearances presented by the different ulcers, and the states of constitutional derangement with which they were identified, and in which I had employed the tincture of cantharides with marked success. The paper alluded to, backed by several cases treated by different medical friends, was forwarded to the Madras Medical Board, who ordered it to be circulated throughout the medical service of the Madras army.

A few extracts from the paper here referred to will show the character of the ulcers where I found the tincture of cantharides useful:—

*Extracts.*—1st. "Where the granulations were exuberant, but pale, weak, and flabby.

2nd. "Where there was deficiency, or total absence of granulations, the ulcers being deep and scooped out, with raised and indurated edges.

3rd. "Where the granulations were not defective, but cicatrizing irregularly, sometimes in the centre, at other times on one side, the lymph which was thrown out and organized one day being absorbed the next.

"It was further remarked that their indolent character was to be referred to morbid states of the system, varying from little perceptible deviation from health to the different grades of anæmia. It was difficult, at first, to assign the cause of this indisposition to heal, in sores which presented themselves in subjects where the general health was little impaired, and this was increased on finding that they did not yield to the exhibition of remedies known to exercise a beneficial influence upon such ulcers. It was from observing the ineffective attemps at reparation which I occasionally witnessed in the different cases that came before me, that suggested the belief of the primary derangement to be owing to deranged circulation of the affected part, and the blood being deficient of, or not elaborating, plastic lymph of sufficient quantity or quality necessary for the healthy granulating process."

My reasons for coming to these conclusions may be briefly stated. The local derangement of the circulation was inferred to exist, from the pale colour of the ulcers, the paucity of granulations, and the hard, indurated bases. The deficiency of lymph was seen by watching the character of that thrown out; it appeared as a thin, scanty epithelium, of a bluish, almost transparent colour; was long in acquiring the features of the contiguous skin, and was altogether divested of the whitish, thick, or flesh-coloured appearance which healthy and well secreted lymph usually presents.—*Lancet, May* 10, 1851, *p.* 510.

---

## 181.—CASE OF PREGNANCY, WITH IMPERFORATE UTERUS.

By Dr. Edward T. Roe, Glasgow.

[The following is a brief extract of this case which was published fully in the 'Guy's Hospital Reports.']

Case.—Eliza P——, aged twenty-three, a stout, robust, and healthy woman, was taken in labour with her first child in the night of Nov. 14th, 1836. She had been married on the 4th of the previous Feb., and had never menstruated since; but before her marriage, from the age of fourteen, the catamenia had appeared every four weeks, and sometimes oftener. Four or five days before labour commenced, a considerable discharge of thin reddish fluid appeared, and continued for forty-eight hours, unaccompanied by pain. After very careful examination, I could detect no os uteri; every pain forced down into the vagina a globular mass, as large as the fœtal head, but without any opening or mark where the os had been, beyond a slight thinning or puckering at the most dependent part. The pains continuing severe and constant without producing any alteration in the condition of the uterus, I requested Mr. Tweedie's aid, and in the night of the 15th Dr. Ashwell's assistance was also obtained. He arrived at eleven p.m. She had then been in active labour twenty-three hours, seventeen of which I had been in constant attendance on her; the pains were still unabated in force, but her bodily strength was now fast failing; her pulse was quick and irritable; tongue dry and injected; skin hot and feverish; and her features pinched and anxious. Dr. Ashwell's most careful examination satisfying him that the os uteri was obliterated, and the condition of the patient warning him that no time was to be lost, he proceeded to incise the uterus by passing a curved sharp-pointed bistoury, guarded by the left forefinger, to that part where the walls appeared thin, and where a slight dimple or puckering could be felt, and cutting forwards and backwards to the extent of about an inch and a half in each direction; scarcely any blood was lost; the liquor amnii immediately gushed forth, and the child's head fell on the artificial opening, which appeared to be about an inch and a half in diameter. The pains were less violent than before the operation, until four a.m., (the 16th), when suddenly the edges of the incision split up in two directions, one anteriorly about two inches, the other backwards and to the left side, farther and beyond the reach of the finger. She felt faint, the pulse became fluttering and almost imperceptible, and the skin cold and clammy, but she eventually rallied, and at eleven a.m. was delivered of a living child, which was with difficulty recovered from a state of asphyxia.

The subsequent progress of the patient was satisfactory, and on the 25th she was convalescent.

About a month after, she was examined, and the following report made: The vagina is short. There is no cervix uteri. The uterus is reduced to nearly a normal unimpregnated state. At the extremity of the vagina there is a puckered, irregular orifice, into which the tip of the finger can enter; it is soft, with smooth and thick edges, not perfectly circular, in consequence of certain indentations, as if from the drawing together of several small rents. Radiating from this central aperture can be distinctly felt three ridges like lines of adhesion—one forwards towards the right ilio-pubic junction, traceable nearly to the reflexion of the vagina; one opposite to this, backwards towards the left sacro-iliac synchondrosis, whose extremity is lost in the reflexion of the vagina; and the third of short extent, about one-third of an inch long, passing backwards and to the right side.

In January, 1839, she was again confined, when, from the rigidity of the previous opening, it was found necessary to divide the edge of the cicatrix in several places before the child could be born.

Objections similar to those of Dr. Fairbrother in Dr. Sheppard's case were made in the '*British and Foreign Medical Review*' to the treatment of Mrs. P——. The incision was thought justifiable; but it was suggested, "that had a free venesection been premised, and some further time given, an os uteri might have been found."

But Dr. Ashwell does not hesitate to assert that the operation was delayed even beyond the bounds of safety; for "from anxiety not to incise the uterus, if it could be avoided, the woman was permitted to incur more risk than was justifiable."

"I am confident," he goes on to say, "so far at least as it is possible to be confident, in cases where a high probability must be our only guide, that where fatal results have occurred, they might often have been prevented by timely incision of the parts.

The supposition that an opening existed, but was undetected from mal-position of the uterus, is, I think, scarcely deserving consideration, when it is recollected that the tendency of the labour pains would be to bring the uterus sufficiently low down to admit of accurate examination, as well as to alter any previously existing obliquity.—*Lancet, May* 24, 1851, *p.* 569.

## 182.—THE CHARACTERISTIC PECULIARITIES, PATHOLOGY, AND TREATMENT OF RHEUMATISM;

### MORE PARTICULARLY AS IT IS FOUND PREVAILING WITHIN THE TROPICS.

By Dr. JAMES BIRD, A.M., London.

[In a paper published in the 'London Journal of Medicine,' (March,) Dr. James Bird, in consideration that the practice pursued in rheumatism, is undefined and somewhat empirical, one employing lemon-juice, another colchicum, and a third a purely alkaline treatment, without any explanation of the principles, or differences of diseased condition, on which such opposite systems of treatment are recommended, has studied the disease, as met with in Europe, and compared it with that prevailing within the tropics, among a class of patients subsisting almost exclusively on non-azotized articles of diet. The great prevalence of rheumatism, and the severity of some of its forms, both among Europeans and Natives in India, originating under atmospheric conditions and habits of life so different from those under which it is found prevailing in this country, seem well calculated to afford light into the nature of an obscure disease, which may be said to be protein in its modifications. Dr. Bird's observations are confined to three points. 1st. Leading varieties of tropical rheumatism, and the particulars in which rheumatic inflammation differs from simple suppurative inflammation. 2d. Origin of the rheumatic diathesis, nature of the paroxysmal fever accompanying articular inflammation, and causes which produce them. 3rd. The general principles of treatment.

Tropical rheumatism presents two principal forms, the stheno-phlogistic, or acute; and the astheno-cachexial or chronic. The former, in its attack of particular tissues, shows a preference for the compound membranes of a serous and mucous kind; the latter affects the muscular, nervous, and filamentous tissues, including the aponeurotic expansion of muscles and the periosteum, having much of a neuralgic character, and being accompanied by vitiated nutrition, and wasting of the parts affected. The very acute variety, associated as in Europe, with pericarditis, or endocarditis, is a form of the complaint seldom presented to observation in India; though cases in which the ordinary symptoms of heat, pain, redness, and swelling of the joints, accompanied by fever, are present, occur both among natives and Europeans. Such attacks usually happen among those inhabiting the colder, dryer, and more elevated table-lands of that country. The astheno-cachectic varieties, associated with different forms of periostitis having all the character of mercurial syphilitic cachexia, are peculiarly the produce of malarious districts. Several interesting cases of these different forms are given, in illustration and proof that astheno-cachectic rheumatism, associated with arthritic periostitis, is a state of constitutional *cachemia*; more frequently developed among the natives of India, than among Europeans after mercurial treatment. The proclivity of native constitutions to this form of disease is said to arise from the more general use of non-azotized articles of diet by the natives than by Europeans; giving to the former less vital power of resistance to the destructive metamorphoses of the tissues, brought on by cold, and abused courses of mercury. As cachexia advances in cases of this kind, attended by complication of rheumatic symptoms, the skin becomes harsh and dry, and is covered by white scales or papular eruptions, having all the character of obstinate psora. The intimate existing sympathy between the skin and epithelial covering of the intestinal mucous surfaces, is deemed to afford sufficient explanation of the occasional association of cutaneous eruptions with derangements of the primary assimilation and intestinal mucous surfaces, as observable in the different forms of arthritic complaints.

The intimate relation that subsists between milder and modified degrees of scorbutic *dyscrasia*, and the forms of astheno-cachexial rheumatism, is then pointed out. This connection has of late years been almost lost sight of, notwithstanding that the great and accurate observer, Sydenham, described a species of rheumatism resembling scurvy in its capital symptoms, requiring nearly the same method of cure; and which he distinguished by the name of *scorbutic-rheumatism*. This species of the disease will be found under ordinary circumstances on shipboard, and among European sailors using in excess salt meat diet, with little or no admixture of succulent vegetables; as well as among bodies of men on land, living on farinaceous seeds destitute of anti-scorbutic properties, or on a diet of unvaried character, with total abstinence from animal food. Such are the circumstances, aided by extreme aridity or dampness of climate under which land scurvy prevails among prisoners in the jails of India, and also among bodies of native troops in particular seasons and localities. The same unvaried farinaceous character of diet, used by many of our Sipahies, predisposes them to attacks of cachexial rheumatism. Several cases of this kind of scorbutic rheumatism are given in illustration, wherein lemon juice, with an allowance of potatoes and fresh meat diet, was found to be of much service in aiding the other means of cure.

The graduated forms of rheumatism just described, derive more of their difference from constitutional causes of distinction, and the less or greater aberration of the blood from its normal state; and though the distinctions of the disease, according to its seat in various parts, are thought to afford less important grounds for opposite therapeutical principles, and modes of treatment, than the differences deduced from constitutional causes,—still the varieties founded on localities are deemed of importance as guides to practical results. The best description of such varieties is considered to be that adopted by M. Chomel;—1st, articular rheumatism, or rheumatism in the joints; 2nd, muscular rheumatism, or rheumatism of the voluntary muscles; and, thirdly, visceral rheumatism, or rheumatism of certain fibro-serous tissues, situated within the splanchnic cavities.

The generality of cases belonging to the first form as met within the tropics, oftener present symptoms of the mild chronic variety than of the intense articular rheumatism of European climates; and though attacks are generally ushered in by febrile symptoms, these symptoms are of less severity than in colder climates, and the disease is less mobile in character. Muscular rheumatism, too, though observed in every part of the body, and usually more amenable to treatment than cases of the articular form, is more frequently met with in the loins and muscles of the limbs than in any other part of the sarcous tissues. This is peculiarly a disease of malarious districts, being very prevalent among the men of native regiments when located in such.

Dr. Bird then proceeds to inquire whether the phenomena of rheumatism be identical with those of inflammation and the phlegmasiæ? Though rheumatism appears with all the phenomena of the latter, its local inflammation still possesses a specific character more symptomatic than idiopathic in nature, and manifesting in progress that the symptoms proceed from a particular constitutional taint, which gives to them a character distinct from simple inflammation. Rheumatism generally presents quite as much of the character of the *neuroses* as of the *phlegmasiæ*; and though evidence be not wanting to prove that acute articular rheumatism sometimes terminates in suppuration and purulent effusion into the joints affected, still rheumatic inflammation differs from simple inflammation, inasmuch as it proceeds from a specific cause and is associated with greater abnormal sensibility of the nerves.

Regarding the origin of the rheumatic diathesis, rheumatism is considered as the result of that pre-existing lesion of the assimilating and excretory organs of the body, which, on the application of cold, errors of diet, intoxication, malaria, and like exciting causes, gives rise to that abnormal change of the blood which constitutes the rheumatic diathesis. Sometimes the blood seems altered previous to the appearance of swelling and local rheumatic inflammation; but, occasionally, where the disease is produced by cold acting on constitutions little or not at all disposed to rheumatism, the altered condition of the blood probably follows the development of the local affection. In either case the heightened metamorphic power of the blood globules gives rise to a greater relative formation of *fibrin* and progressive diminution of *hæmato-globulin* as they occur in rheumatic fever and its consequences. The natural tendency of rheumatism is to *anæmia*, and to the production of phenomena depending on a diminution of the blood globules, as lately prominently noticed by Dr. C. Ferral, in his observations on rheumatic cases with endocardic complications; where, after the employment of depletion and mercury, a cardiac bruit different from that which originally presented itself, continued to persist, notwithstanding the steady employment of means for subduing inflammatory action.

That mordid condition of the blood, which constitutes the *rheumatic dyscrasia*, occurs in all cases where the circulating fluid either becomes deteriorated by the absorption of foreign poisonous matter, as in gonorrhœa, and in certain exanthematous diseases, accompanied by primary and secondary symptoms; or by the reversion into the blood of increasing morbid secretions, as in uterine affections that give rise to diseased conditions; which, though now fashionably treated as local disease by caustic and other like applications, are often, indeed, results of this very state of constitutional *dyscrasia*.

The anatomical seat of rheumatism is peculiarly confined to the fibro-serous tissues, including articular capsules, cellular tissue, mucous follicles, synovial glands, the interior ligaments of joints, the muscles and tendons, the dura mater as reflected on the medulla oblongata and spinal cord, the pleura, the peritoneum, and nerve tubules. The localized manifestations of disease are accompanied, according to age, temperament, and previous habits, by almost opposite conditions of the blood, states of *hyperinosis* and *hypenosis;* which differences of constitutional cause give the rheumatic swelling of the joints more or less the character of ordinary inflammation. The local swelling of stheno-phlogistic rheumatism differs from ordinary inflammation in having more a character of irritation than the latter; but, according to the researches of M. Andral, agrees with it in this that the fibrine in the blood increases from two-and-a-half or three to as much as ten parts in one thousand, oscillates in the sub-acute form between four and five, and returns to the natural standard in well marked chronic cases. This state of *hyperinosis* is, however, rather relative than absolute, being accompanied by a corresponding diminution of the red corpuscles; which, as Simon supposes, are wasted in the metamorphic production of the fibrine.

We come next to the treatment—on which subject Dr. Bird says—the general therapeutic principles to be followed in attacks of tropical and European rheumatism, are—1. To subdue constitutional irritation and fever by narcotics and refrigerants. 2. To eliminate from the system the retained cholæic elements, and other excrementitious matters of the blood, which render the urine acid, and occasion its lithic deposits. 3. To restore the conditions of normal nutrition by suitable diet in the stheno-phlogistic kinds, and by iron, cod-liver oil, and tonics, when the rheumatic symptoms are associated with *cachemia*. 4. To subdue local symptoms of swelling and pain by leeching, cupping, and blisters, followed by anodyne applications, or local anæsthetics.

In order to fulfil the first indication which is the principal and leading one, in cases of the stheno-phlogistic kind, much professional discussion and difference of opinion have arisen, regarding the efficacy and propriety of general bleeding, as one of the means. The extent to which this remedy may be usefully employed, will depend much on the youth and naturally plethoric constitution of the patient, the inflammatory character of the local affection, the severity and tonic nature of accompanying fever, and the purity and bracing influence of the air to which the patient has been habitually exposed. The degrees of fever are found to correspond generally to the coldness and purity of the air in which the patient has lived, the azotized richness of his diet, and the proportionate *hyperinosis* of the blood accompanying good air and rich nourishment. In a general inflammatory diathesis, therefore, the propriety and efficacy of general bleeding are fully established by our own experience, and recommended by a host of unexceptional authorities. But the natural tendency of rheumatic inflammation and fever being to produce anæmia, we must not be too prodigal in wasting the nutritive resources of the constitution; and should be guided in repeating the bleeding, according to the quantity and inflammatory firmness of the blood-clot, and the effect which the first bleeding may have had in subduing irritation and mitigating fever. The same extent of general blood-letting, that might be useful to the temperate and well-fed inhabitants of cold salubrious localities, would be highly injurious to the nervous, irritable, bodily habits, of those addicted to excessive beer drinking and other dissipated practices. The same quantity of blood, then, abstracted to cure quickly the plethoric mountaineer of Scotland, would endanger the life, or render tedious, the con-convalescence of an inhabitant of London, breathing an atmosphere deteriorated by sulphuretted hydrogen. The necessity, too, of general bleeding in tropical rheumatism is rather an exception than the rule, as might be expected from the comparatively mild character of its fever and inflammatory symptoms.

To carry out further this indication, after a moderate bleeding, recourse may be had to ten-grain doses of nitrate of potash, given along with small doses of tartarized antimony and citrate of potash, three or four times a day, in the form of effervescing draughts; or the nitrate of potash may be combined with nitrous ether and other diuretics; the intention in either case being to subdue heat and irritation, by restoring the normal excretory functions of the skin and kidneys. The utility of nitrate of potash seems dependent on its power of diminishing the plasticity of the blood and suspending the metamorphic disposition of the blood globules to produce fibrine. Under its use the specific gravity of the urine is increased, this being a medicine which possesses the power of eliminating urea and other compounds of lithic acid from the system. Such power is probably increased by the combinations of nitrate of potash with other alkaline compounds, as the citrate and acetate of potash, which are converted into carbonates in the course of the circulation. All such means, however, prove refrigerant by subduing the heat and irritability of the body; and the effect of such may be greatly increased by the addition at bed-time, of anodynes, either opium or aconite.

Of medicines best adapted to carry out the second indication, calomel and Dover's powder at bed-time, followed, next morning, by a solution of sulphate of magnesia in compound senna infusion, with the addition of an alkali and colchicum, will be found among the most useful. Much misapprehension regarding the beneficial therapeutic action of the latter medicine seems to exist; some deeming its chief efficacy consists in its power of eliminating urea and uric acid from the system; while others deny to it any efficacy in subduing symptoms of true rheumatism. It is chiefly useful in cases of the acute disease, accompanied by a foul loaded tongue, biliary derangement, and intestinal mucous accumulation. Both our Indian and European experience has convinced us of the fact, that without its purgative effect being induced, the urinary secretion is seldom so much increased in quantity as to bring with it any considerable relief of rheumatic symptoms. The most beneficial mode of administering it in India is to give the wine of colchicum twice or thrice a day, in a weak solution of tartarized antimony, along with liquor potassæ, and tincture of the hydrochlorate of morphia. Free action of the kidneys and skin is thus kept up, and the feverish frequency of the pulse reduced; but, even in such a case, the use of purgatives, and the elimination of the biliary secretion, must not be neglected or lost sight of. Where diarrhœa, or the purgative effect of colchicum is established, there the amount of urea and uric acid in the urine appears to be diminished; these compounds being eliminated, as would appear, by the intestinal evacuations. Dr. Bœcker, in a late minute examination of the action of various medicaments, with reference to the changes produced by them in the constituents of the urine, the exhalations of the lungs, and the blood, found that, contrary to the general opinion of pharmacologists, the use of colchicum produced but slight diuretic action, and had very little effect on the constituent parts of the urine. During its employment, the activity of the skin and lungs, in exhaling carbonic acid, is considerably augmented, and after a time its effect in causing an augmented secretion of bile becomes apparent; the melanotic blood globules, which are unable to combine with the oxygen of the air, being destroyed in the hepatic system, afford materials for an augmented secretion of bile. The result of his analyses, thirteen in number, on the action of colchicum and its known utility in rheumatism, seem to bear strongly on the truth of the opinions expressed as to the pathological nature of this disease.

The employment of calomel, with a view of obtaining its full purgative effect in cases of the stheno-phlogistic variety, should be more steadily pursued to carry out this indication than the plan of giving it with opium in order to obtain its constitutional effect. From its special action on the biliary organs, it is in Indian rheumatism an invaluable remedy: and in this country too, when properly administered in aid of colchicum and other purgatives, will be found of much utility, by depurating the blood, through increased biliary secretion, in those hyper-carbonized states of the system associated with the disease in many of those cases met with in London. The practice of mercurial fumigation, as successfully used both in this country and in India, proves useful by increasing the elimination from the skin, and restoring the cutaneous function to a normal state. The same result may be partially secured in both varieties of the disease, by means of warm bathing, warm clothing, and friction of the surface.

The third indication has more immediate relation to cases of the astheno-cachexial kind than to those of acute rheumatism. The impaired state of the digestive function being so intimately associated with the origin and progress of the rheumatic constitution, it is of much importance, while carrying out the second indication, in acute varieties of the disease, that due attention should be given to the diet of the patient, which must be diluent and of easy assimilation. In the early stage of disease it should consist of gruel, thin arrow-root with milk, or weak broth; and if beef-tea be allowed, it may be given with the addition of twenty or thirty drops of liquor potassæ; the alkali serving to neutralise the lactic and other acids which accumulate in the stomach along with diseased mucous secretions. As phlogistic symptoms, even in the worst examples of acute Indian rheumatism, are associated with much destructive irritation and waste of tissues, a too active or injudicious employment of the diaphoretic and purgative treatment must be avoided, as such will both derange the primary and secondary assimilation. Such derangement is marked by emaciation, loss of strength, pale anasarcous visage, and other signs of cachexia; and as the early appearance and rapidity of such symptoms are most remarkable in persons inclining to the leuco-phlegmatic temperament, the treatment for carrying out the two previous indications should not be such as makes too great a demand on the resources of the constitution. When cachexia appears, we must have recourse to the bark, sulphate of quinine, preparations of iron, or iodide of potassium, all of which operate beneficially on the constitution, by improving the tone of the organs of primary assimilation, modifying the nutrition of the tissues, and increasing the *hœmatine* of the blood. A combination of these several remedies may be necessary, according to the nature of particular cases; and where iodide of potassium, if given alone, would utterly fail in relieving symptoms, it may be usefully employed in combination with the bark, or sarza-decoction, or extract of taraxacum, by which the double effect of healthy cutaneous action and increased elimination by the kidneys may be generally secured. The iodide of potassium must not be given in large quantities, but along with it laxatives are as essential as in using colchicum. In many such cases, the compound decoction of sarza, to the extent, at least, of half a pint twice daily, with an equal proportion of warm milk, has been found to be of much utility in promoting the nutrition of the tissues and bringing back healthy cutaneous action. The extract of sarza pills, with resin of guaiacum and sulphuret of antimony, may be given advantageously with the same object, care being taken to supply the patient with light easily digested elements of nutrition. Among such elements we may mention cod-liver oil, which in two cases, when prescribed in this country, proved of much benefit. One of these was a case of excruciating pericranitis, affecting the aponeuroses of the cervical vertebræ, and accompanied with neuralgia of the superior maxillary branch of the fifth pair of nerves; the other was hysterical neuralgia of the intercostal muscles. In both cases counter-irritation was employed by means of a liniment of oil of turpentine with pyroligneous acid over the pained parts; and in the former, the oil was given along with the extract of aconite at bed-time.

The last and fourth indication is to employ remedies suited to subdue the pain and swelling of the local affections. If such are of a muscular kind, strongly stimulating terebinthinate liniments, warm fomentations, and shampooing of the parts, will be found beneficial in relieving pain; but in some cases, such was its severity and persistence, that the patients were relieved by nothing except the abstraction of blood from the parts by means of cupping-glasses. When the joints suffer, and are much pained and swollen, we found no local applications more useful than leeches and repeated blisters to the parts. If the latter be employed, the blistered surface may be dressed with an ointment containing small quantities of the hydrochlorate of morphia, or extract of belladonna. The application also of a wet bandage, saturated with a lotion of camphor mixture, wine of colchicum, and tincture of the hydrochlorate of morphia, covered over by cotton wool and a piece of spongio-piline to prevent evaporation, will be found of much utility. Others have of late recommended for the same purpose a chloroform lotion, or one of Dutch liquid, stating such to be of great utility in relieving the pain and swelling of the joints; but though we have had no experience of their efficacy, they appear well calculated to fulfil the same intentions as other like remedies which have been long in use. More might be said as to the greater or less efficacy in rheumatism of special remedies, but as we place little faith in such when used without discrimination, we defer any such remarks to a more fitting opportunity. the great object of this paper being to delineate the leading characters of rheumatic disease, and the therapeutic indications most applicable to each.]

## 183.—ON BURNS AND SCALDS.

By Samuel Crompton, Esq., Surgeon, Manchester.

[In a report on burns and scalds, drawn up for the Provincial Medical and Surgical Association, Mr. Crompton has given a complete abstract of those papers on this subject which were received by him from the practitioners of the provinces, most of which had already been printed *in extenso* in the 'Provincial Medical Journal,' and of some of which an abstract has been given in previous volumes of this 'Retrospect.' Mr. Crompton's abstract is interspersed with such reflections as have arisen in his mind on this important topic during the years 1847-8-9 and 50. He begins by giving a list of the names of those gentlemen who contributed the information on which the report is founded; he then states that "the real object of the inquiry was not to elicit a series of papers containing entirely *new* views, but to ascertain which of the numerous plans of treating burns, recommended in systematic treatises, are adopted by the profession, and what are the prevailing views respecting their value." He then directs attention to the frequency of burns in the provinces, and to the large experience which provincial practitioners must necessarily have of these accidents, and consequently, how valuable must be their opinions on their treatment. He speaks of the materials placed at his disposal by his professional brethren as "constituting a mass of practical information of very great value," and proceeds with his report. He objects to the received classifications of burns as being calculated to mislead the practitioner, and for not taking into account the three most material points, viz.: the immediate effects produced on the constitution of the patient, and the superficial extent of the burn. He proposes a classification based upon these points, which he says are essentials of a good practical classification. If any influence is brought to bear upon the human body, and produces effects which are not compatible with the easy and due performance of the vital functions, the nervous system has the power of so adjusting the action of the injured parts, or of those which are adjacent, as to compensate for the mischief, by either restoring the part to health, or making its loss or injury as little prejudicial as may be. So in a kingdom, if an insurrection takes place in (we will suppose) some distant part, the local authorities, holding their power from the higher, may, if it be of small extent, suppress it without requiring the help of the central government, and the latter may scarcely feel it or be affected by it; but if the magnitude of the danger be such as to require greater force for its removal, the central or governing power may be so far affected by it as to be paralysed, or it may feel the magnitude of the danger so acutely as to be roused to the most strenuous action, everything else being set aside except the suppression of the insurrection. So it is in the body: if the injury done by a burn be—

1. Local; that is of so small an extent as not to affect the nervous centres so as to produce any of those symptoms which are usually spoken of under the generic term *shock;* the adjusting power of the parts adjacent to those injured, seems to be nearly sufficient to repair the mischief, and what the nervous centres contribute does not interfere with their other relations. In these cases, the pain from the burn is usually very severe; the patient acts for himself, his perceptions and sensibilities are neither lessened nor prevented, nor is the circulation much quickened or depressed, nor are there shiverings. But if the mischief done to the injured part be of greater importance, the condition of the system is the best, and certainly the only sure guide to us in judging of its gravity. Here the local affection is secondary in importance, and the management of the burned part is to be regarded less than the derangements of the nervous centres, and the train of symptoms which immediately begin to spring from the shock communicated to them. These, it seems to him, form a distinct class, which may be termed

2. Constitutional, or vital burns, which are capable of several divisions according to the severity of the constitutional symptoms. Shivering (though not enumerated by Dupuytren among the effects of burns) is one of the most striking features in cases which come under the observation of English surgeons; and it seems to Mr. C. to be the most important of the early symptoms as a guide in shewing whether, or how far, the constitution suffers from the burn. If the pain in the burned part is complained of as a very severe burning pain, and there is *no shivering*, the case is generally one which will recover. If, however, there is shivering, and the patient does not seem to suffer much burning pain in the part, there is danger; and the treatment must be mainly constitu-

tional. In proportion to the severity of the shivering, and the frequency of its recurrence, will usually be the danger of the burn. Hence, then, the importance of the existence of shivering, and its recurrence as a test of the severity of a burn; and, therefore, as a line of demarcation by which we may separate those cases which require *constitutional* treatment chiefly, from those which require merely *local* treatment. It is curious that, as a result of the application of heat to the body, it should be possible to draw such a distinction, as that one class of cases should be complaining of the intense heat in the injured part, whilst the other class should be shivering. Mr. C. adds that it is probable that the conflicting and perplexing statements respecting the efficacy of remedies in burns, depend mainly on this difference in the condition of the system. If there be the feeling in the part of burning heat, we can understand how cold applications would be grateful; and further, how the case would get well. even though they were not the best, for the powers of the nervous system are intact. But surely no one would recommend the continued application of cold to a patient labouring under the depression and shivering attendant upon a severe burn.

Another novel view started in this report, has reference to the principle on which external applications to burns are beneficial. It has generally been held that they do good chiefly by *excluding the atmospheric air.* Mr. Crompton considers this explanation to be unphilosophical. It appears to him to be incorrect to regard the air which we can take into the minute texture of our lungs as an irritant to an external sore. If the air is as injurious to the skin when it is excoriated (as it is commonly supposed to be) might it not be expected that it would be *very irritating* to a mucous membrane, even when in a healthy state? But it is not so; and further, if the air which passes over an inflamed mucous membrane be *warm,* it does not appear to harm it; but when the air is exceedingly cold, it does harm, not only to the inflamed but to the healthy mucous membrane, especially to the lining of the respiratory organs. As an example of the irritant effect of cold air on the healthy mucous membrane of the nostrils, he instances the increased discharge of mucus from them on a frosty morning, and the pain which is then felt when the cold air first enters the nostrils immediately after sneezing or blowing the nose. In warm weather, the air produces no such painful effect. He concludes, therefore, that it is the accidental circumstance of its coldness which is pernicious. Air of itself, *air as air,* produces no irritation; but *cold* air, that is air destitute of a given proportion of caloric, produces much irritation. Bearing in mind the analogy which exists between skin and mucous membrane, it can hardly be supposed that air will be more injurious or irritating to the skin than it is to the mucous membrane of the respiratory organs. And if *warm* air can continually pass in a current, and in large quantity, over the inflamed mucous membrane of the mouth, nostrils, or bronchi, without producing much irritation (if any), can it be supposed that air, if warm, does harm to any sore or wound of the skin? Is it not more just to suppose that it is the fact of its possessing a greater or less amount of sensible heat which renders it injurious or the contrary? By appealing to the process of nature in the healing of wounds, he finds a confirmation of these views:

LIBRARY

blood or serum coagulates upon a wound, and forms a dry scab, which is not only an excellent mechanical defence to the sore, but a powerful non-conductor of heat. There is a close agreement between what we observe of this process of nature and the results of experience; for surgeons take as the basis of their dressings such animal and vegetable substances as are known to be the best non-conductors of heat, e.g., spermaceti, wax, suet, resin, animal and vegetable fixed oils, isinglass, mucilage, &c. So exact is the agreement between theory and practice that, according to Dr. Duncan, the three classes of outward applications—"ointments, cerates, and plasters, are *all* combinations of fixed oil or animal fat with other substances;"—that is to say, their basis consists of those substances which in the living animal or vegetable resist sudden changes of temperature, and, in the former, play a most important part in the maintenance of the animal heat. Such external applications as lint, simple poultices, and the water-dressing, do not appear to be exceptions to this law, as he tries to prove. He does not however, attribute all their efficacy to their non-conducting power, for he states that, for the most part, they are also idioelectrics and non-conductors of electricity: circumstances probably of much importance. Neither is it to be inferred that he holds that non-conductors do good by imprisoning the animal heat; for he mentions that though they are non conductors, yet that they have a large capacity for heat; that they serve to preserve uniformity of temperature in the injured part, and tend to soothe the nervous irritability of the injured part, by preserving the nerves from feeling the variations of temperature in the currents of air which would act upon the surface. If the view which he takes be correct, *the thermometer becomes an important instrument in determining the therapeutical value of external applications;* and the scepticism entertained by some respecting the value of cotton, treacle, flour, &c., is shown to be unphilosophical.

Our space will not permit us to give further extracts at present. In a future volume we hope to give more, and we must refer our readers to our present synopsis of treatment for further information.]

---

184.—*Method of Depriving Quinine of its Bitterness.*—DR. RICHARD H. THOMAS, of Baltimore, reports the discovery of a method by which quinine may be quite deprived of its great bitterness without injuring its virtues. He combines two grains of tannic acid with ten of quinine.—*Amer. Jour. Med. Science*, April, 1850.—*Med. Times, June* 15, 1850, *p.* 440.

---

## 185.—ON THE INHALATION OF VARIOUS MEDICINAL SUBSTANCES.

By DR. JOHN SNOW.

[It is natural to suppose that many agents exert a greater local power over the mucous membranes when inhaled, than when they pass through the stomach, and reach the lungs by the circulation only; in fact, some, as chlorine and ammonia, could not do so if exhibited in any other way. As to the mode of inhalation,]

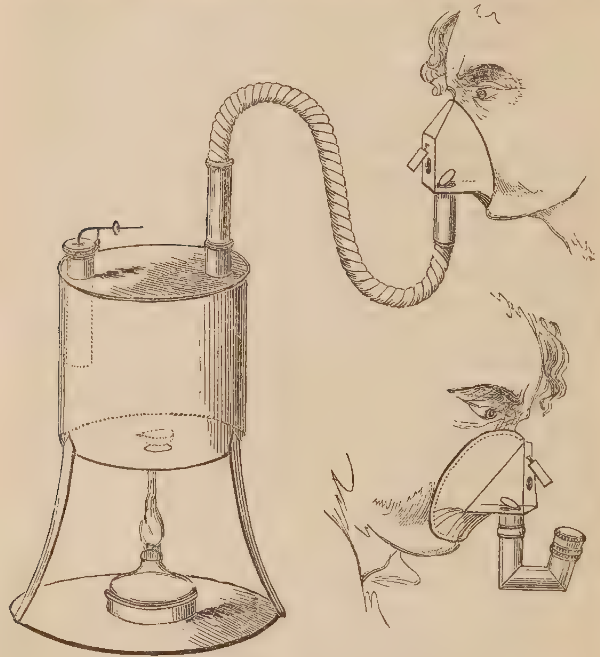
The most important of the additions to the mechanical means for inhalation, which followed the discovery of etherization, is the flexible face-piece, to include both the nostrils and mouth. Dr. Sibson introduced this, although Dr. Hawksley contrived a similar one about the same time. It is shown in the engraving, which accompanies this paper, in the modified form in which I use it. The sides and margin, which form the flexible part, consist of thin sheet lead, lined with oiled silk, and covered with leather. The expiratory valve can be moved more or less to one side from the opening it covers, so as to admit unmedicated air, whenever the vapour feels too pungent. The advantages of a face-piece of this kind are, that it can be fitted to every variety of face; that the patient requires no instructions, having nothing to do but continue breathing in his usual way, either by his mouth or nostrils, as he pleases; and that it imposes no labour on the respiratory muscles, for when applied to any suitable form of inhaler, it may be kept attached to the face for any length of time without fatigue. As I recommend the face-piece in every kind of inhalation (except where substances have to be drawn into the larynx in the form of powder, when a glass tube may be used), it has been described before treating of individual medicines, to which attention may now be directed.

[Opium is very extensively inhaled in China and India, as an indulgence; but the temperature required is sufficient to decompose pure morphia or the meconate, or about 400° F.; hence, the effects seem to be produced by the generation of new products by the heat applied. The Chinese use a pipe for the inhalation of opium, heated over a spirit lamp, using at one time a piece of the watery extract the size of a pea. Dr. Snow continues:]

I have contrived an inhaler, which is adapted for a great number of other medicines as well as opium. (Fig. 1.)

It is made chiefly of tin, and consists of a cylindrical chamber, between four and five inches in diameter, and three or four inches deep, under the centre of which a spirit lamp is placed. The bottom of the inhaler consists of a thin piece of talc, on which is placed a small capsule of Berlin-ware, for the purpose of holding the extract of opium. A porcelain funnel-holder, which is placed on the talc, keeps the capsule exactly over the flame of the lamp. The talc allows sufficient heat to be transmitted to the opium, without conducting it the sides of the inhaler, and, consequently, the air which is inhaled is not unduly heated. The lid of the inhaler is moveable; it is provided with a delicately balanced valve for the admission of air, and is connected with the face-piece before mentioned, by means of an elastic tube of wide calibre, as shown in the engraving. (Fig. 1.)

The extract of opium, in the form of a pill, is placed in the capsule without any addition, and the spirit lamp is lighted beneath it with a very small flame, which may be increased if requisite. The patient begins to inhale immediately the lamp is lighted, and continues to do so as long as anything is given off. The moisture contained in the extract is first expelled by the heat and inhaled, then follow the active principles of the opium, accompanied, after a time, with some smoke, and nothing is left but a porous carbonized mass. The process, being conducted slowly, usually lasts about ten minutes. If the volatile products be too irritating at any time, and excite coughing, the spirit lamp should be removed for a minute, the inhalation being continued, however, in the mean time. The patient learns very soon to accommodate the process to his tolerance of the vapour, the pungency of which is very slight.



1. Larger Inhaler. 2. Smaller Inhaler.

[At the Hospital for Consumption, at Brompton, a considerable number of patients have inhaled opium during the last twenty months, and many of them apparently by this means increased in weight, and improved in general health. Dr. Snow thinks morphia the most suitable preparation of opium for inhalation. He says:]

It has been inhaled by one patient, in the dose of half a grain, and I have inhaled it in the same quantity. It is much easier and pleasanter to inhale than the extract of opium, the extractive matter of which supplies some smoke, which is probably quite inert. It is of service to mix the morphia with a little dry plaster of Paris, to give it more weight and bulk.

With respect to the doses just mentioned, it should here be remarked that a medicine, when inhaled, cannot be all absorbed, as usually happens when it is taken into the stomach, for only part of it reaches the lungs, whilst another part is expired again with the air which has occupied the nostrils or mouth, the larynx, trachea, and larger bronchi. I am inclined to believe that about one-half of what is inhaled is usually absorbed; for, on inhaling air charged with vapour of chloroform from a bladder or small balloon, I experienced as much effect from ten minims, when it was breathed backwards and forwards for a minute or two, as from twenty minims, when the air was only breathed once.

Extract of stramonium has been inhaled in the Brompton Hospital, with more or less relief, by five or six patients affected with asthma. Four grains were used, in the same manner as opium. The spirituous extract of aconite was used also by one patient, in the quantity of a grain; and it is probable that other extracts might be employed with advantage, in the same manner.

*Gum-Resins.*—The fumes given off by these medicines may be inhaled in the same way as opium; but, as these fumes are pungent when in large quantity, it is advisable to powder two or three grains of the gum-resin, and mix it with about ten times as much of some inert powder, as gypsum, before exposing it to heat in the capsule. Used in this way, ammoniacum gives off a very fragrant odour, and, though rather pungent, can be inhaled very well by most persons. With steam the gum-resins can be easily inhaled, as the quantity of vapour which they give off, at the temperature of boiling water, is small. In this way, however, the patient gets no great amount of the medicine; but probably enough to exert some local action.

*With Vapour of Water.*—For the inhalation of medicines along with the vapour of water, I employ the above-described inhaler, using a somewhat larger earthenware capsule than for inhalation in the dry way. Into this capsule or dish, about half an ounce of water is put, together with the medicine to be inhaled. The water is heated by the spirit lamp, sometimes till it boils gently, but generally to a point rather short of boiling. This quantity of water yields as much vapour as a patient can conveniently breathe in about half an hour; and a much greater amount of the medicine can generally be inhaled than if it were placed in a larger quantity of water. In the case of some substances, indeed, as iodine, oil of turpentine, and camphor, which are particularly adapted for inhalation in this manner, the medicine is all inhaled before the water is finished.

Iodine may be most conveniently inhaled, by adding a small quantity of a strong spirituous solution of it to half an ounce of water. Twelve minims of the iodine tincture of the *Dublin Pharmacopœia*, containing one grain of iodine, are a suitable dose. The advantage of adding the iodine in the form of tincture is, that it becomes equally diffused through the water. As the patient inhales, the water becomes less and less deep in colour, and by the time that he has inhaled about three-fourths of the water, he has inhaled the whole of the iodine; and the remaining water is colourless. On account of its irritating effects on the stomach, it would probably be advisable that iodine should be given by inhalation, in every case in which its exhibition is required. Allusion is here made only to iodine, and not to the iodide of potassium, which, not being volatile at the heat of boiling water, cannot be inhaled in this manner. I very much doubt whether phthisis be one of the diseases to be benefited by iodine. It was inhaled by eighteen patients at Brompton, in the summer of 1849, and the following autumn and winter; they generally commenced with half a grain, and it was increased, in one or two cases, to two grains; but the usual dose was a grain once a day. In two or three cases it was discontinued, as it seemed to increase the cough, and one or two of the patients complained of head-ache from its use. It was continued, however, for more than a month, in ten of the cases; and I was present on nearly every occasion, to see it inhaled. It may consequently be said to have had a fair trial; but no benefit could be observed to follow its use. It was not inhaled as above recommended, but from a Woulfe's bottle, over the interior of which its spirituous solution was diffused; no artificial heat nor vapour of water was employed; the inhalation was continued till the iodine had disappeared. There were consequently no extraneous circumstances to interfere with its action.

Oil of turpentine has been inhaled in a few cases, by putting twenty drops of it, with about half an ounce of water, into the capsule; the spirit-lamp being placed underneath, as usual. The boiling point of oil of turpentine is much higher than that of water; but owing to the great density of its vapour, as compared with steam, it evaporates more quickly than water, as happens with iodine, and consequently it is all inhaled before the water is consumed. The cough has appeared to be relieved in the cases in which it was used. One was a case of hæmoptysis, which subsided under its use, as, however, it might have done without it.

Camphor can be conveniently inhaled by putting thirty or forty drops of the tincture into half an ounce of water. It is usually consumed as soon as the water with which it is mixed. It has appeared to relieve the cough, in a few cases in which it has been used.

Benzoic acid can be inhaled with the vapour of water. If six grains be put into half an ounce of water, the patient will inhale about half of it, and should leave off before the water is quite dried up, to avoid the pungent fumes which would otherwise arise. For the next inhalation, some water and about three grains more of benzoic acid can be added to that which remained. I have not seen sufficient of its employment to speak of its effects.

Creasote may be best inhaled in the same manner. If not more than about four drops be put into the half ounce of water, all of it will be inhaled. I have generally given creasote, however, with the inhaler marked number 2 in the engraving. Several patients have inhaled it at the Brompton Hospital, generally using three or four drops twice a-day. The benefit from its use has not been very great, but might probably have been greater, if it had been inhaled with vapour of water, which itself is serviceable.

*Inhalation of Medicines at the Ordinary Temperature.* — The smaller inhaler, shewn in the engraving, was contrived for the inhalation of chloroform in medical and obstetric cases. It is made of brass tube, rather less than an inch in diameter. and is lined with bibulous paper to absorb what is put in, and afterwards yield it up in the form of vapour as the patient inhales. It is adapted by a screw to a face-piece similar to that employed with the other inhaler. It is not my intention to speak of chloroform on the present occasion. Amongst the other medicines which have been inhaled with it, are hydrocyanic acid and conia; and it is adapted for the inhalation of almost any agent that does not require the application of heat.

Hydrocyanic acid has been inhaled by several patients at the Brompton Hospital, but it has not seemed to produce any good effects which would not have resulted from its use by deglutition. The quantity inhaled was generally twice as much as one would give by the stomach, and it was somewhat diluted with water, to diminish the pungency of the vapour, and enable the nurse to measure the quantity more easily in the minim glass.

Conia, the volatile alkaloid of spotted hemlock, has been inhaled by several patients. Some of this active principle having been kindly given to me by Mr. Morrison, I first tried small doses on myself, and found that a minim of it could be inhaled without inconvenience. This was the quantity usually administered, although two minims were inhaled in a few cases. Dizziness was caused by it in many instances, especially when the larger dose was employed, but this effect subsided in less than an hour. The cough was usually relieved by it, and in two or three cases of asthma, the breathing was also relieved. The conia was diluted with nine parts of spirit, both for convenience in giving the right dose, and in order that it might be better diffused over the paper in the inhaler, and offer a large surface for evaporation.

The following experiment, performed in 1848, on the inhalation of conia, may not be uninteresting, as shewing that this is one of the agents which might be employed for the prevention of pain in operations.

A chaffinch was placed in a covered glass jar, holding 100 cubic inches and one grain of conia was put in. The bird seemed unaffected for ten minutes, and the jar was opened with the intention of trying a larger dose; a minute afterwards, however, it fell on its side and lay, not relaxed, but like a stuffed bird, as it head did not droop. It moved its legs, now and then, by convulsive starts. It was insensible to pricking and pinching, although, from the appearance and motion of its eyes, it seemed to be conscious all the time. It recovered its sensibility in about two minutes, but was not able to stand for ten minutes. It afterwards appeared well.

In a guinea-pig, in which the inhalation was continued till a fatal effect was produced, violent convulsions occurred before death, and the heart remained irritable afterwards.

Ammonia has been inhaled with great relief in a few cases, in which more or less bronchitis, with difficulty of expectoration, existed. The inhaler employed was similar to that described by Mr. Smee in the 'Medical Gazette' for 1843, except that an elastic tube and face-piece were attached to it. It consists of a Woulfe's bottle with wide apertures, and a tube for the entrance of air, descending a certain way, but *not* dipping into the solution employed. The ammonia was given weaker than by Mr. Smee. Two ounces or so of cold water remained constantly in the bottle; and when it was about to be used, twenty minims of strong solution of ammonia were added, and the patient inhaled for half an hour, or as long as ammonia continued to be given off. The inhalation was repeated twice or three times a day.

It may be remarked, that either ammonia or hydrocyanic acid might be inhaled, along with vapour of water, in the opium-inhaler first described; so that a person provided with it might apply it in almost every kind of inhalation.

Chlorine has been inhaled by a few patients, in different stages of phthisis, but with no advantage, although it was continued by some of them for a few weeks. To obtain it, some chloride of lime was put into the Woulfe's bottle-inhaler, just mentioned, and moistened with a little water. When it was wished to increase the quantity of chlorine beyond the small amount spontaneously given off, the inspiratory valve of the face-piece was prevented from closing completely, and a little of the expired air being thus allowed to get into the bottle, the carbonic acid it contained acted on the lime, and caused chlorine to be liberated.

It will be observed, that the medicines mentioned above have all been recommended to be inhaled, either alone, or with the vapour of water: and, as a general rule, it is better for medicines to be inhaled singly; since, no two being equally volatile, they could not be inhaled, if combined, in the proportions in which they might be mixed. The method of administering medicines by inhalation also being yet as it were, in its infancy, the exhibition of one at a time is better adapted for the collection of correct observations respecting their effects.—*London Journal of Medicine, Feb.* 1851, *p.* 122.

---

186.—*Dutch Liquid as a Local Anæsthetic.*—M. Aran has recently communicated to the Academy of Medicine in Paris a paper on Local Anæsthesia. The following are his conclusions, given in the 'Gazette Médicale de Paris' for 23rd November, 1850.

1. All general anæsthetics (the ethers, chloroform, Dutch liquid, aldehyde, benzine, &c.) possess also the property of inducing local anæsthesia.

2. The energy of the local anæsthetic power is in an inverse relation to the volatility of the substance. This explains why Dutch liquid is superior, as a local anæsthetic, to all others, why chloroform is better than ether, and acetic ether than the other ethers.

3. Some anæsthetics, as the ethers, aldehyde, and benzine, produce no irritation when applied to the skin; others, again, are more or less irritating. Chloroform produces, in small quantity, a burning sensation, and may even produce vesication, if the quantity be greater, and con-

tact more prolonged. Dutch liquid is irritant; but infinitely less so than chloroform.

4. The local anæsthetic action of Dutch liquid continues longer than that of other substances, even when only from fifteen to thirty drops are applied to a painful part. It only produces slight stimulation, and has a slight ethereal odour, more agreeable than that of the ethers, aldehyde, or benzine.

5. To obtain local anæsthesia, from fifteen to thirty drops are to be dropped on the painful part, and the whole covered with a wet compress and a piece of waxed cloth (or oiled-silk). This succeeds in most cases, where local anæsthesia is indicated.—*London Journal of Medicine, March*, 1851, *p.* 269.

187.—*On a Newly Recognised Principle in the Induction of Anæsthesia, and on a New Anæsthetic Agent.*—By DR. T. CATTELL, Braunston.—[Dr. Cattell thinks he is right in deducing the following principle with the regard to the use of anæsthetics—That no anæsthetic agent should be allowed ingress to the lungs of a higher specific gravity than the air we breathe—which he believes will offer a greater safeguard against the occurence of dangerous and anomalous symptoms than any yet propounded. To carry this into effect, an apparatus is necessary, which will permit the specific gravity of the vapour being lowered to the standard in question and uniformly maintained during the process of inhalation, and which will allow of such vapour being inhaled directly intermixed with a given proportion of free oxygen, or in connexion with another compartment containing it.]—*Lancet, Dec.* 7, 1850, *p.* 628.

188.—*Local Anæsthetic Medication.*—DR. ARAN, member of the Central Board for Hospitals, addressed a note on the value of various anæsthetic agents in reference to local medication. The following are the chief of Dr. Aran's conclusions:—

1. All those volatile agents that are recognised as general anæsthetics possess the same property when applied locally.

2. This local power is not in direct relation to their general anæsthetic powers, but is in an inverse ratio to their volatility. Thus the Dutch liquid, or chloride of olefiant gas, exceeds all others; chloroform excels ether, &c., &c.

3. Some of these agents do not produce any irritation of the skin—*e.g.* ethers, aldehyde, and benzine—while others, as chloroform and Dutch liquid, cause a sense of burning, and, if applied long enough, produce vesication.

4. Therefore the Dutch liquid is the best local anæsthetic agent: its action endures a longer time, it produces only slight stimulation of the surface, and has a less disagreeable odour than the ethers, &c.

5. It is not necessary to employ large quantities for obtaining these local effects: from fifteen to thirty drops of the chloride of olefiant gas, covered with a moist compress, will suffice to allay pain in most cases.—*Med. Gazette, Dec.*, 6, 1850, *p.* 986.

## 189.—ON THE MODE OF ORIGIN AND PROPAGATION OF THE EPIDEMIC CHOLERA,

### IN HUDDERSFIELD AND THE NEIGHBOURHOOD, IN THE AUTUMN OF 1849.

By DR. JOHN TAYLOR, Physician to the Huddersfield Infirmary.

[Dr. Taylor examines all the cases occurring in these districts, to find if they contribute anything towards the elucidation of the mode of origin and propagation of cholera.]

I. *Origin of the disease.*—The cases which I have given occurred in *thirty-seven* distinct places. In *thirty* of these places the disease did not arise from any known source of contagion. The following are the names of the places:—Colne Bridge. Quay-street, Lowerhead-row, Union-row, Fenton-square, Stock's-buildings, Cliff-end, Lindley, Fartown, Paddock, Clough near Paddock, Johnny Moore-hill, Brierley Mill, Thomas-street, Cross Church-street, Lane, Ash Brow, Dead Waters, Swallow-street, Rashcliffe, Hill-house, Old Post-office-yard, Cropper's-row, Dyke end-lane, Old street, Slaithwaite, Greenside, Milnsbridge, Lime-kilns, Crosland Moor.

If this statement requires any modification it is in respect to Quay-street (Case 4), Lindley (Case 10), and Cropper's-row (Case 64).

In the remaining *seven* places, the disease showed itself in persons coming from an infected district. In only *one* of the seven places did more than one case of cholera occur (viz., Castle-gate), and in this instance there was no known communication between the first patient and the one or two subsequent ones. The disease does not seem to have spread, therefore, in a single instance. It is probable that in each of these seven instances the patient acquired the disease in an infected locality, and moved to the place in which the disease broke out during the period of incubation. The following are the names of the seven places:—Vagrant Office, Huddersfield; Bradley Mills, Mold Green, Castle-gate, South-parade, Meltham, Huddersfield Prison.

The disease broke out nearly at the same time in distinct points, at considerable distances from each other, and under circumstances which make it appear in the highest degree improbable that it could have been conveyed from one place to another.

From these facts it seems fair to conclude that the cholera did not arise by contagion in any, perhaps, of the thirty places first mentioned; and that it is impossible to suppose that it could have sprung from contagion in all the thirty places.

II. *Propagation of Cholera.*—1.—We have just seen that, in seven places, the first person attacked had come from an infected district, yet the disease did not spread in any one of these instances. The particulars have been given of the removal of a family under circumstances highly favouring the spread of a contagious disease, yet without any such effect having followed.

2.—In fifteen out of thirty-seven places in which the cholera was observed, more cases than one occurred in each place.

In two of these fifteen places (Lindley and Dead Waters) all the cases occurred in the same house. In these places, therefore, it is difficult to judge whether the disease was propagated by contagion, or whether all the cases arose from the same source.

In the thirteen remaining places the cases occurred in more houses than one. Under what circumstances did the disease occur in a second or a third house, after it had appeared in the first one, in these thirteen places?

In two of them it may be regarded as certain that there was no communication between the houses first and those afterwards affected. (Paddock and Slaithwaite.)

In nine of them there was very probably no communication. (Quay-street, Union-street-lane, Swallow-street, Thomas-street, Castle-gate, Rashcliffe, Clough, Cropper's-row (?) )

In two of them there was communication between some houses, and none, probably, between others. (Cliff-end, Johnny Moore-hill.)

In two cases (Nos. 63 and 54) the disease was undoubtedly contracted by visiting an infected place. But whether it was acquired by contagion, or by exposure to certain local influences, independently of contagion, it is not easy to determine. Another case, (Mrs. Brooke's, described at page 341), in which a person, having left her home at Johnny Moore-hill, for fear of cholera, returned to it after a time, and was taken ill before holding any communication with her neighbours, would point to the inference, that the disease was acquired from the place rather than from the people. But there is room for doubt whether the illness in this case was an effect of the choleraic poison.

Thus, a careful analysis of the cases leads me to the conclusion that in some of them the disease *certainly* was not propagated by contagion, and that it *probably* was not in most of them. In others, again, it *may* have been, and in a few it is not improbable (although it is by no means certain) that it was propagated by contagion.

If cholera were propagated exclusively by contagion, the poison must be the most virulent, and the most certain in its operation of any of the contagious poisons known to us. Small-pox, measles, and scarlet fever, of all contagious febrile diseases, are perhaps those which are the most certain to be communicated to exposed persons who have not already suffered from them. But these diseases are never observed to spread with a rapidity which admits of an instant's comparison with that of cholera. In the case of cholera, one house is affected to-day, two or three others, near or distant, to-morrow, and as many more each succeeding day, until a whole neighbourhood has been devastated within a period of time that would barely suffice for the propagation of any other contagious fever from one patient to half a dozen more. If the contagion of cholera were so virulent as this opinion supposes, comparatively few persons visiting an infected district could hope to escape the disease; and persons removing from an infected place would *generally* become the centres of a fresh circle of cases, whereas, in this district, the diseaes never spread from such persons. Washerwomen, and those employed in attending to the dead, would almost always suffer; yet, in the few cases in which I have had the opportunity of inquiring, these persons do not appear to have suffered at all, except when they were at the same time exposed to the other supposed causes of the disease.

Again, diarrhœa accompanied the cholera in such a manner as to lead almost inevitably to the conclusion, that both diseases depended upon the operation of the same poison. In one class of persons, and under one class of circumstances, diarrhœa resulted; in another class, or under other circumstances, cholera. Diarrhœa began to be epidemic a little before, and ceased to be so a little after the cholera. It prevailed to an extent to which, I believe, it is never observed to prevail, except when in conjunction with cholera. Both diseases visited the same places to a great extent. In some houses, villages, and towns, one of these diseases; in others both, occurred. But very few places altogether escaped both. Within a few days after the appearance of the epidemic in a neighbourhood, it often happened that a great majority of the houses had been visited either by diarrhœa or by cholera. It is not possible to suppose that diarrhœa, when observed under such circumstances, could be propagated to any material extent by contagion; and, if this statement be true of the diarrhœa, it can scarcely be less true of the cholera.

2. *Endemic Influences.*—Having arrived at the conclusion, that the epidemic cholera neither arose nor was propagated, exclusively, nor even to a very material extent, by contagion, I proceed now to inquire what influence was exercised in the production of the disease by causes of a local character.

In *all* the cases in which I have had an opportunity of making the inquiry, (and that is in nearly all of them,) some of the local causes, whose influence is now generally recognised, were found to exist. Many of the places in which the cholera broke out, and all those in which it prevailed to any extent, were previously well known for their unhealthiness, and have been noted for their liability to fever and other epidemic diseases. The following circumstances, either singly or in various combinations, are those which have been chiefly remarked in the places visited by the epidemic:—

1. The accumulation of filth of various kinds, foul privies, bad drains, or the absence of drains, and want of personal cleanliness.

The good effects of cleanliness are strikingly exhibited by the fact, that only one house at Johnny Moore-hill was free from both diarrhœa and cholera, and that the occupants of that house were distinguished from their neighbours by their superior cleanliness.

2. Overcrowded dwellings and bad ventilation. The bad effects of these circumstances were especially seen at Johnny Moore-hill, where they were observed in almost every house, and where the disease prevailed most in the most crowded houses. The good effects of removing from such places are noticed at p. 342.

3. A number of the cases occurred in low situations, and near to a river or canal.

The disease broke out in a very severe form, but did not prevail extensively, in several elevated and very airy situations, (Cliff-end, Lindley, Clough near Paddock, and even Johnny Moore-hill.) In all these instances, the ordinary local causes were present in a high degree, and seem to have operated injuriously, in spite of the beneficial influence of an otherwise pure air.

4. There were abundant materials for the production of malaria in

several places, *e. g.*, the old fish-pond near to Paddock and Cliff end; also at Dead Waters, a marshy locality, as the name indicates. It has been stated that, before the cholera appeared at Johnny Moore-hill, the wind blew from the fish-pond towards the dwellings. After this time the wind was generally easterly, and it is possible this circumstance may have had something to do with the immunity of the general village of Paddock, and with the spread of the disease to several places west of Paddock, as Milnsbridge and Slaithwaite.

5. The condition of the water was inquired into in most places. There was no reason to suppose that it was contaminated in any instance, unless in the case of two families, who had used the water in the old fish-pond in July and August.

The influence of the local causes just enumerated appears to have been increased by the personal state or habits of various individuals. Such are—

1. *Intemperate Habits.*—These are noticed in several cases, and certainly existed in many more.

2. One patient was attacked soon after eating cucumbers and fat meat.

3. *Previous Liability to Diarrhœa.*—In cases ten and forty-one this is mentioned. In one instance, however, an individual subject to diarrhœa, and exposed to the cholera, escaped all further illness.

In one case the disease came on after purgative medicine had been taken, the patient being exposed at the same time to all the other causes of cholera.

4. Fatigue, poor food, and exposure to cold and wet, seem to have exercised considerable influence in case 1.

5. Great fear of the cholera preceded its appearance in several cases.

6. *Adult age* appears to have been a predisposing cause.

Thus, in this neighbourhood the disease visited those places only in which one or more of the local influences just referred to were to be found. The same statement, with comparatively few exceptions, is equally applicable to the country at large. We are forced, therefore, to the conclusion, that these local influences are intimately connected with, and that in most, although not in all cases, they may even be said to be necessary to the development of the disease.

In this fact is probably to be found the explanation of another, viz., that the villages near the town were more severely visited by cholera than the town of Huddersfield itself. The hygienic condition of many of the villages is worse than that of the town. In the epidemic of 1832 not more than one or two cases of cholera occurred in Huddersfield; and I have not heard that any more were seen in the neighbourhood. A large part of the town stands upon a gentle declivity. Its position offers natural facilities for drainage; and the elevation and the arrangement of the streets render it more likely to be well ventilated by the frequent high winds than are many other towns. In 1832 active preventive measures were very generally adopted, under the apprehension of a visit from the epidemic; and these, no doubt, contributed largely to the immunity which the district at that time enjoyed. Since then the rapid increase in the population has led to a multiplication of local nuisances; and the usual consequences of these would probably have been experienced in a more severe visitation from the last epidemic, had it not been for the efforts of the Commissioners not long before appointed under a new improvement act. These gentlemen, with an enlightened appreciation of their duties, and in the face of opposition raised on account of the expense, caused many of the worst nuisances to be removed long before the cholera came among us. The jurisdiction of the Commissioners does not extend to those smaller places which were most severely visited, and which, instead of the moderate outlay occasioned by sanitary improvements, have now to bear the far heavier and more permanent expense of maintaining the widows and orphans of those who have been prematurely cut off.

One of the most remarkable singularities of the epidemic cholera is this: that after attacking one, two, or three persons in a bad locality, it will cease there. Again, it will altogether pass by other neighbouring spots, as bad or worse than the one visited. One house will be invaded, whilst others much nearer to the nuisance, supposed to be concerned in the production of the disease, will escape. (See remarks on the cases at Lindley, at Fountain street, and at Cliff-end.) Upon any hypothesis respecting the origin of cholera, I can only suggest one explanation of these facts, viz.: that of a number of persons exposed in an infected place, some are but little or not at all susceptible of the disease; some are exposed to the poison during a shorter period of time, or in a greater state of dilution; others escape it altogether, from changes in the wind, &c.; and the rest are attacked, some with cholera, some with diarrhœa or dysentery, and others with cramps, pains in the bowels, indigestion, and other forms of indisposition.

3. *Atmospheric Peculiarities.*—But will air, rendered impure by emanations from filth and foul drains, and by want of ventilation, of itself explain the origin and propagation of cholera? I believe it will not; for all these sources of impurity have existed all over the country, and in a greater degree than they now do, for years before the epidemic cholera appeared. If this cause were an adequate one, I do not see why the disease should not revisit us every year.

We are forced, then, I think, to adopt the hypothesis that, in addition to local nuisances, and probably also to contagion, there must be some peculiar condition of the atmosphere. That remarkable and unusual atmospheric phenomena of various kinds were observed in many places, is a matter of fact, and has been recorded in several publications upon the disease. The precise nature of these changes remains yet to be ascertained.

Upon this hypothesis we can explain most of the circumstances attending the origin and propagation of the cholera; its simultaneous eruption in separate and distant spots in the same neighbourhood; the escape of other individuals or places apparently equally exposed; the very rapid diffusion of the disease (like influenza) in the same town and over large districts, or even over a whole country; the occasional eruption of it in ships at sea, and also its progress from one country to other and distant countries. When the poisoned atmosphere passes over a town or village, it operates principally upon those who inhabit the worst places, either because its noxious effects are increased by the local atmospheric impurities, (which is probably the principal reason,) or because the persons who inhabit such places, from being less favourably situated in respect to food, clothing, habits, and mental condition, are more liable than others to suffer from any cause of disease applied to them.

The facts I have stated render it impossible for me to believe that cholera was *commonly* propagated by contagion in this district; but I by no means deny, as I have already intimated, that it may have been so propagated in some instances. Many cases, moreover, have been published, upon the authority of trustworthy observers in other places, which seem to prove the contagiousness of the disease. There seems to be nothing to forbid the supposition, that a disease which arose from local impurities or from atmospheric influences may afterwards spread by contagion. Typhus, small pox, measles, &c., must, in the first instance, have arisen without contagion, yet it is certain they are now propagated by contagion. Why may not the causes which *first* produced these diseases, frequently *reproduce* them now? Is it not probable, in fact, that they do? If so may not the same thing occur in the case of cholera? I will only add, in conclusion, that I have collected the *facts* I have recorded with much care, and have endeavoured to reason upon them without any bias. Before I analyzed these facts, I had never formed, nor ever expressed, any opinion respecting the mode of origin and propagation of the cholera. The opinion I have now formed and expressed has been suggested to me solely by my own personal inquiries.

*Period of Incubation.*—When the cholera has been acquired in a particular place, whether through contagion or through other local influences, it is desirable, when possible, to determine the period of incubation of the poison. In most of my cases it is not possible to do this, because the patients lived amongst, and so had been long exposed to, the nuisances which probably had a share in producing the disease. Three cases, however, afford more precise information upon this point. In case 37 the disease broke out within three days of the time when the patient first visited the spot at which he must have imbibed the poison. In case 36 the disease broke out in about three and a half days, or eighty-four hours, after the first exposure. In case 21 the patient, a child, left an infected place, and was not attacked until ten or eleven days after, having removed to a spot where there was no other case of cholera either before or after.

*Treatment, Mortality, &c.*—There is nothing deserving of remark in the treatment of the cholera at Huddersfield. Various plans were tried by various practitioners, but the cases were too few in number to admit of any plan being tested upon a large scale. The mortality did not differ materially from that observed in many other places. The deaths were thirty-nine, the recoveries fifty-four. These numbers are given only because a widely different account has been published.

The treatment of the premonitory diarrhœa was very generally successful; and, by adopting the plan of house-to-house visitation, many such cases were discovered and stopped, and no doubt many lives were saved.

My experience of the last epidemic would lead me, in the event of another such visitation, to urge the great importance of house-to-house visitation, with a view to the discovery and treatment of all cases in the early and still manageable stages; the removal of the healthy from infected and over-crowded houses to places of refuge in proper situations; the clearing away of all nuisances; lime-washing the houses, and other similar measures.

The most beneficial measures, however, are those sanitary improvements which can only be carried out at leisure, and when no epidemic is pressing upon us. By these means, no doubt the cholera, and also many other diseases, might be, to a great extent, prevented, and much suffering and many lives might be spared. The want of proper persons, possessing the requisite authority to undertake this duty, in some cases, and a mistaken view of the expense in others, have hitherto prevented it from being discharged in a manner adequate to meet existing evils. The great fact, established upon most ample evidence, that it costs very much less to remove nuisances, and thereby to prevent disease, than to maintain the families of disabled men, and to make provision for their widows and orphans, is not yet sufficiently known to, or is not properly appreciated by, the local authorities of most towns and villages. The result is that, in this district as elsewhere, if cholera returned to-morrow, it would find us unprepared to stay its progress. The places that were cleansed have generally relapsed into their former filthy condition, and would afford all the facilities for the development and spread of the disease which they unhappily supplied during the last epidemic. It is to be hoped, that the Huddersfield Improvement Commissioners, who have shown that they understand what is required of them, will not be prevented from doing it effectually within the limits of their jurisdiction, by any short-sighted outcry against the necessary expenditure.

Nearly the whole of the preceding report was written in December, 1849, and January, 1850. Since it was completed, the Report of the General Board of Health, already referred to, has been published. The results arrived at are the same in every important particular. The inquiries were totally unconnected with each other.—*Med. Times, April* 12, 1851, *p.* 399.

## 190.—THE CHOLERA—WHAT HAS IT TAUGHT US?

By W. J. Cox, Esq.

[In a pamphlet of which Mr. Cox is the author, he gives the result of ninety cases of cholera, treated by five different methods, so that we can at once recognise and compare the value of each of the different modes adopted. With regard to his views of the nature of malignant cholera, the conclusions he arrives at are as follow:]

"2. That the cholera virus acts primarily upon the lining mucous membrane of the intestinal canal (chiefly the arch of the colon and lower part of the ileum), producing at first a high degree of irritation, and afterwards a *specific* inflammation, rapidly tending to disorganization. This is proved, I think, by the condition of the villous coat discovered in those who die early in the collapse."

"4. As a consequence of this excessive energy of the sympathetic ganglionic centres, the intestinal canal becomes highly positive, rapid decomposition of the tissues takes place, and great increase of temperature occurs, arising necessarily from the unwonted activity of the chemical processes of oxidation and destruction. Congestion and semi-paralysis of the contiguous viscera (liver, hepatic ducts, spleen, kidney, &c., but especially the two first mentioned) soon happens, and, becoming severe and persistent, ends in—

"5. Paralysis, partial, or, in rapidly fatal cases, often complete, of the mesocephalon, medulla oblongata, and upper part of the medulla spinalis, caused directly by the carbonized blood circulating through the nervous centres.

"10. Where the collapse is survived, the greatest danger after reaction is established consists in the lighting-up of gastritis and encephalitis, terminating in ulceration of the stomach and effusion beneath the arachnoid.

"11. That cholera has a manifest and remarkable tendency to a periodical return of the accession of its symptoms. Patients frequently recover from the first shock of collapse, which generally sets in at night; reaction becomes well established during the day, to be succeeded by a fresh attack of the worst symptoms of prostration after sunset. This periodicity is noticed, more or less, in all febrile affections.

"12. That the disease is certainly contagious; I will venture to say, from my own limited experience, it is more contagious than continued fever."

From these views of the nature of cholera. Mr. Cox has deduced the subjoined method of treatment, which he has found more successful than any other yet proposed:—

"To sum up, then, the list of remedies, I think we are warranted in concluding are the most worthy of trust, as being the most rational, and in practice successful. The order of precedence in which they are placed indicates what I conceive to be their relative merit. They should, however, be used simultaneously. We are not, I think, justified in trusting alone to any one remedy when we have to cope with so terrible an enemy but should use the combined force of all such auxiliaries as have stood the test of experience. 1. CALOMEL: in 'small and repeated doses,' as recommended by Dr. Ayre, except in such instances wherein, as before stated, violent cramp is present, when it seems preferable to exhibit it in larger doses. [See the report of my own cases.] The only modifications I have adopted and ventured to suggest in Dr. Ayre's mode of administering this grand remedy, are—*first*, to give it in the form of powder instead of in pills, for its action is more rapid when so administered: *Secondly*, to give it alone, or at all events not in combination with opium. Dr. Ayre, I believe, now concedes this point. 2. ICE: externally to the abdominal region, and also by mouth. 3. SPONGING with very dilute nitro-hydrochloric acid. 4. SULPHURIC ACID. 5. MERCURIAL INUNCTION of the right hypocondrium. (Strong blue ointment, half an ounce to an ounce, repeated in two hours if deemed necessary). Of this list, No. 1. *is certainly, I boldly say A* 1. I shall presently adduce statistical evidence of their actual value, as well as of their relative value, when compared with other remedies."

Some space is devoted to answering the objections urged against the calomel treatment; but this, in our opinion, is quite unnecessary. If the author's experience has shown him that, by adopting it under similar circumstances, there have been fewer deaths than when the patients were treated on any other plan, this is *pro tanto* a conclusive answer to all objections. We care not what the *theoretical* operation of a remedy may be, provided it be proved to be a *bonâ fide* remedy; and in this respect we think there has been much profitless choleraic discussion. The little that we know, physically speaking, of the *modus operandi* of any one drug in the Materia Medica on the organic tissues should satisfy us that a remedy may have an empirical character, and yet be highly serviceable in the hands of a skilful practitioner.

Mr. Cox informs us that the calomel treatment was employed by Dr. Ayre, in 1832, in 219 cases, and there were forty-three deaths: in 1849 it was used by him and his colleagues in 3764 cases, and there were 371 deaths. The mortality of cholera in the cases thus treated, amounted to about twelve or thirteen per cent. In the practice of Dr. Wilson, of Sheffield, the deaths under the same plan of treatment were not more than twenty per cent.: and, according to Mr. Cox, out of upwards of 900 cases treated on the calomel system in small doses, there were only *seven* deaths,—*i. e.* less than *one* per cent.; while the average mortality from cholera varies from *fifty* to *eighty* per cent. Mr. Jones, like Mr. Cox, at first pursued the *saline treatment, and lost every patient!* and afterwards the stimulant and opiate system, which proved nearly as unsuccessful. As the experience of *one* practitioner on the treatment of cholera, the following summary of the results of ninety cases is of value:—

| | Results. | | Deaths. |
|---|---|---|---|
| Cases treated by stimulants and opium .................. | 17 | ... | 10 |
| Cases treated by stimulants alone........................... | 5 | ... | 3 |
| Cases treated by tartar emetic ............................. | 4 | ... | 4 |
| Cases treated by large doses of calomel .................. | 9 | ... | 1 |
| Cases treated on Dr. Ayre's system, modified............ | 55 | ... | 13 |
| Total | 90 | ... | 31 |

The subjoiend paragraph gives the relative mortality under the "small dose" calomel system and other methods of treatment:—

"From the reports and statistics I have here adduced, and from all I have been able to learn from numerous authentic sources, I have arrived at the following general ultimate estimate of the relative value of the calomel treatment, viz.—

"Deaths under Dr. Ayre's system, 20 to 24 per cent.

"Deaths under other methods of treatment, *saline*, stimulants, &c., 50 to 70 per cent.

"This, I beg *earnestly* to assure my readers, is not a rough and prejudiced guess, but the conviction resulting from patient inquiry."

Mr. Cox not only points out the plan, which, according to his experience, was most successful, but he plainly denounces other plans which utterly failed in his hands, and appeared even to hasten death. Of the *tartar-emetic* treatment, he says:—

"In my own hands, and under the management also of many of my friends, it proved a *decided and deplorable failure*: I lost *every case*, and those not of an especial malignity of type;—insomuch so, indeed, that nothing would induce me, in the event of a fresh outbreak, again to waste valuable time in giving it a new trial, which, I firmly believe, must prove equally futile."

Of opium we find him expressing the following opinion:—

"The administration of opium must be not only useless, but *manifestly contra-indicated*, as being fraught with great danger. Indeed, I consider this drug TOTALLY INADMISSIBLE in any stage, or in any dose. It is *quite powerless* to check the vomiting and purging, or to relieve the cramps. Moreover, it must, by its well-known influence on that organ, greatly promote the risk of congestion of the brain, to which, and its fatal results, there is naturally a strong tendency when reaction takes place."

In short, Mr. Cox regards the board of health specific—opium—as "a poison" in Asiatic cholera. The application of hot mustard poultices, or heat in any form to the abdomen, is also condemned.

"That heat applied in any form to the abdominal parietes must prove injurious, as tending in a great degree to keep up the high action already going on within, and to accelerate and hurry on to still greater rapidity the destructive processes of inflammation and decomposition, * * * I have never witnessed the application of heat to the abdominal region during the collapse of cholera with any other effect than to intensify the condition of prostration, and to increase, or even re-excite vomiting."

Applications of ice or cold water either locally or taken by the mouth are, on the contrary, attended with good effects.

We must bestow on Mr. Cox the praise of fairly recording his testimony on the results of five different methods of treating cholera. Experience thus accumulated cannot fail to be serviceable to medical science; but at the same time we must take leave to remind the author that there are two sides to the picture. While Mr. Cox regards calomel in small and repeated doses as the sheet-anchor in the treatment of cholera, and opium as *never serviceable* in the diarrhœal or any other stage of the malady, another experienced observer—Dr. Hughes, of Guy's Hospital—equally ardent in the search of truth, and desirous of improving medical practice, with, perhaps, a larger field of experience before him, has arrived at conclusions diametrically opposed to those of Mr. Cox. In an interesting paper published in this journal, Dr. Hughes states that the results of the small-dose calomel plan were so unfavourable as to produce a mournful depression of his spirits. All, or almost all the patients, so treated, died! He records that the calomel was thus tried in twelve consecutive cases by a friend. *All died*, and died more rapidly than ordinarily, though the patients were of varying ages and in different stages of the complaint. Let our readers compare this with Mr. Jones's (of Wandsworth) mortality of one per cent., and then try and arrive at some conclusion respecting the fallibility of medical observation or experience. No one can doubt the accuracy of the reporters on either side. Hence it follows, on the one hand, either that all the cases were not cases of cholera, and the calomel had nothing to do with recovery or death, or on the other, that the locality in which the calomel is administered must exercise a surprising and an unaccountable influence on the results! In such a conflict of testimony, how are we to arrive at the truth?—*Med. Gazette, Jan.* 17, 1851, *p.* 111.

## 191.—CHOLERA IN ITS RELATION TO SANITARY MEASURES.

[Before commencing a review of this subject, it should be premised that for five years preceding the invasion of cholera in 1848, there had been a progressive increase in the ratio of zymotic diseases, especially typhus fever, influenza, and diarrhœa, the latter, however, continued its course with the most steady progress. The deaths from this disease in the metropolis, during the five years ending 1848, amounted to 7580; whereas in the preceding five years, there were only 2828. It appears also from statements made, that the epidemic of cholera in 1848-9 was a more fatal one than the preceding visitation of 1832-3. In that of 1832-3 one person in every 250 died, while in that of 1848-9, one died in every 151. With regard to the principal localising conditions and predisposing causes of this virulent and fatal disease, the first to be mentioned is, perhaps, *overcrowding*, for]

Of all the circumstances affecting health, none is so important as the condition of the air that we breathe. On it, more than upon the food we eat, depends the purity of the blood and the right exercise of every function of the body. Hence the especial care manifested for the maintenance of the respiratory process in all animals, alike by the admirable structure of the organs which subserve this purpose, and the beautiful arrangements and adaptations of the media in which they live, and the circumstances in which they are placed. In a state of nature, all goes on healthily and well. The same air is not breathed a second time until it has been rendered pure as before; for whenever the air has been brought into close proximity with the blood of a living animal, it immediately experiences a change which disqualifies it for healthy respiration. One fifth of the oxygen which it contained —we speak of the function in the human being—disappears, and its place is occupied with a nearly equal volume of carbonic acid. How, then, can the same portion of air be inhaled again without detriment? A determinate amount of oxygen is required, at each act of breathing, to enable the system to get rid of the carbonic acid, which requires to be discharged every moment, and which, if not eliminated as nature intended, acts as a slow poison to the blood. If we take the ordinary computation of twenty cubic inches of air being drawn into the lungs at each inspiration, and of there being about twenty respirations in a minute, then 333 cubic feet, or thirty-three hogsheads, are made use of by each person *per diem*. Not less than between ten and twelve cubic feet of carbonic acid are therefore evolved in the course of the twenty-four hours, a quantity which will be found to contain at least six ounces of solid carbon! The consideration of this fact alone must suffice to show the extreme importance of there being no impediment to the due exercise of the respiratory function, and prepares us at once for the pernicious results that inevitably attend upon the breathing of an atmosphere which does not enable the system to remove its self-generated poison. The retention or inadequate discharge of the carbonic acid,—besides the more direct effects of oppression, loss of appetite, and greatly impaired muscular energy,—renders the body more prone to every form of diseased action, and far less capable of resisting the influence of baneful agencies from without.

But the chemical change in its composition is not the only alteration which respired air has undergone. Besides the large amount of carbonic acid, it has become charged with a watery vapour, which of course renders the atmosphere of unventilated chambers unduly moist—a condition to which we shall afterwards have occasion to allude, as one of the causes favouring the development of epidemic disease. The quantity of fluid exhaled from the lungs, under circumstances of health, is believed to be at least from sixteen to twenty ounces in the course of the four-and-twenty hours. Of course, if the process be imperfectly performed, as it must be liable to be in an atmosphere already loaded with moisture, nature must seek an outlet for the excretion at some other channel. And let it not be supposed that it is mere aqueous vapour that is thus discharged; there is effluvial animal matter mixed with or dissolved in it,—a matter which, upon being condensed, is found to be of a highly putrescent and rapidly decomposable nature. It is in fact one form of the waste, and therefore excrementitious, products of the system, which are being continually eliminated by the various emunctories of the lungs, skin, bowels, and kidneys; each of these organs having its special task to perform in the great process of excretion and purification, so indispensable to the maintenance of healthy life. That the atmosphere of ill-ventilated rooms, where a number of persons have been congregated for some time, is tainted with this animal effluvium, is obvious from the peculiar sickening smell perceived on entering a crowded dormitory in the morning before the doors and windows have been opened, or even a large school-room after children have been in it for several hours; unless, indeed, there has been—as ought always to be a thorough and continual circulation of pure air. Medical men and others, after visiting the wretched abodes of the poor, often retain for several days in their clothes, the offensive smell of such localities;—how, then, must the bedding and furniture of such apartments, as well as the garments of the inmates, be impregnated with it! It clings to the very floors and walls of the rooms; and these, moreover, from the vicious construction of the windows—being seldom or ever made to open from the top—can scarcely be kept quite sweet, even under the favourable circumstances of non-crowding and cleanliness. The pollution of the atmosphere from the cause now mentioned, viz.: the existence of a noxious organic matter in it, is probably a more influential cause in generating certain forms of disease, and in powerfully predisposing to the invasion of epidemic disorders, than even the vitiation of it from an excess of carbonic acid. It is necessary, however, to keep both in view, as well as the increased amount of aqueous vapour, in estimating the baneful effects of deficient ventilation in the dwellings of the poor. But the lungs are absorbing as well as excreting organs; they are as ready to take in, as they are active in giving out. The blood is permeating every part of these with such rapidity, that the entire mass of it is believed to circulate through them, and to be consequently exposed to the air contained in their minutely-divided cells, in little more than three minutes. How favorable, then, is such an arrangement, coupled too with the exquisitely delicate fabric of the pulmonic tissue, to the imbibition or absorption of all volatile matters in the respired air, and their immediate transmission to every part of the body! There cannot surely be a reasonable doubt, that not only are the special morbific poisons generally received into the system in this way, but that also the gaseous products of animal and vegetable decomposition, and the effluvia given off from living bodies, are apt to be drawn into the circulation by the lungs, and serve to vitiate the blood—more or less rapidly and powerfully, according to age, vigour of constitution, and other accessory causes—and to deteriorate the health. The general effect of the absorption of such matters is to lower, in a very marked degree, the physical energies of the system, rendering it at the same time much more irritable and less enduring of fatigue; while the more special result is to induce a tendency to diarrhœa and other disorders of the bowels, a proneness to fever and inflammations of a typhoid type, and, as might be expected, a peculiar liability to all epidemic disorders.

One of the most striking illustrations of the effects of *overcrowding* on choleraic invasion, is that afforded by what took place at Taunton in November, towards the close of the epidemic. The town, which contains about 16,000 inhabitants, although, like every other place in the kingdom, very faulty in its sanitary arrangements, is better than most; and, with the exception of a good deal of diarrhœa, had remained tolerably healthy. Suddenly a violent attack of the pestilence took place among the inmates of the workhouse; diarrhœa had existed for some time among them. The first case of cholera occurred on the 3rd of November; and in ten minutes from the time of seizure, the patient was in a state of hopeless collapse. Within the next forty-eight hours, no fewer than forty-two cases and nineteen deaths had taken place; and in the course of one short week, out of 276 inmates, sixty, or nearly twenty-two per cent., were swept away, and nearly all the survivors suffered to a greater or less degree from cholera or diarrhœa. The greatest mortality occurred among the girls; for out of sixty-seven one half were attacked, and as many as twenty-five died. Ten deaths occurred among the boys, and the rest among the older inmates. Now what was the condition of the workhouse? It is described by Dr. Sutherland as being low, badly drained, and most imperfectly ventilated; there were numerous nuisances within the walls; the people had insufficient space allowed them, and personal cleanliness was very much neglected. The medical officer had repeatedly called the attention of the Board of Guardians to the defective arrangements of the house, in consequence of the amount of disease among the inmates, but without effect. "It is very subject," to use his own words, "to epidemics, to measles, scarlet fever, typhus, diarrhœa constant (especially in children), dysentery, scurvy." He complained much of the closeness and offensiveness of the ward at night, and considered that the space allowed each inmate was not above two thirds of what was requisite for safety. So much for the general condition of the house. But how came it that the stress of the attack fell upon the girls' school-room?—was there any peculiarity in its condition? Dr. Sutherland tells us that—

"The greatest degree of overcrowding existed in the girls' school-room, which was a slated shed, fifty feet long, nine feet ten inches broad, and seven feet nine inches high to the top of the walls, over which was a sloping roof. In this miserable place were huddled together sixty-seven children, with about sixty-eight cubic feet of air to each."

And this, too, during a season of epidemic sickliness, and when the premonitory disease was actually prevalent in the house! A curious circumstance, that well deserves notice, occurred with respect to the boys' school. This apartment was even somewhat worse than that of the girls; but the boys, finding doubtless the air to be so close, could not be kept from breaking the windows. "Mr. Smith, the chaplain of the workhouse, stated his firm belief that it was to the better ventilation which the broken windows maintained, that the children, in some measure, owed their lives."

While the pestilence was raging in the workhouse, and the inhabitants of the town were suffering a good deal with bowel complaints, although no actual case of cholera occurred among them, it is a very remarkable and most instructive fact, that *not a solitary case even of diarrhœa occurred among the prisoners of the gaol.* The prisoners were much better cared for than the poor inmates of the union. Each cell contained from 800 to 900 cubic feet and upwards of air, besides being systematically ventilated and warmed, to maintain an even temperature throughout the twenty-four hours. Moreover, each prisoner had the means of personal cleanliness, and attention to this was strictly enforced throughout the building. The result was, that the health of the prisoners remained throughout perfectly good. "Opportunities rarely occur," remarks Dr. Sutherland, "such as those afforded by the instance before us, of testing the truth of the principles of preventive science."

[As an example of overcrowding, the Tooting case may be taken. In this establishment 1400 pauper children lodged, with little attention to sanitary arrangements. The crowds were so great in the dormitories, that each boy had only 150 cubic feet of air, and each girl 133 cubic feet, for respiration. The consequence was, though the epidemic had not appeared in the neighbourhood, 300 of these inmates were stricken with the pestilence, and out of these 180 died. The girls suffered more severely than the boys. Mr. Grainger, in his elaborate report of this case to the Board of Health, concludes as follows:]

"After maturely considering all the circumstances connected with the painful occurrence, I am induced to express my firm conviction, that the essential cause of all the mischief has been the inordinate overcrowding of the establishment. Dangerous as I conceive the effluvia from the foul sewers and stagnant ditches to be, yet, diluted as they were by the winds, they might not alone have been sufficient to produce this outbreak, as may be presumed by the immunity up to this time of the inmates of other houses near these moats and ponds. But the state of overcrowding was such as must have lowered the health of the inmates in ordinary times, and was almost certain to produce disease under the depressing influence of an epidemic condition of the atmosphere. Without doubt, both the noxious effluvia and the overcrowding contributed to the calamitous result; but of these two causes I attach the utmost importance to the overcrowding, which, on any site, when carried to such an extent as will be immediately shown to have prevailed in this establishment, must have lowered the health of the inmates and predisposed them to disease."

[Mr. Grainger states, as the result of his observations, that the epidemic raged with the greatest violence where the wards were most crowded and most defective in proper aëration.]

But the crowding in workhouses and similar institutions never reaches that degree, which is unfortunately but very common in the dwellings of the poor, and especially in the low lodging-houses in our large towns. It is no unfrequent thing to find two, three, and four families living in one room, which does not exceed ten or twelve feet square. Occasionally the accumulation is much greater than this. In the report of the Whitechapel Association, just published, we read of thirty-seven human beings, men, women, and children, being crammed into a room ten and a half by thirteen feet; the majority of them were nearly naked and very filthy. What a scene of horror! The inevitable pollution of the air under such circumstances is, of course, extreme; and it is only wonderful that life is not more frequently extinguished by suffocation. The amount of sickness, however, is truly dreadful. When a single case of febrile disease occurs in this corrupted and corrupting atmosphere,—not air, but putrid vapour, as some one has called it,—the morbific fermentation (zymosis) proceeds with extreme rapidity, and the ravages of death are often quite appalling, if the residents are not at once removed into a purer locality. Some severe invasions of the disease took place in such places at an early period of the epidemic, while the adjacent neighbourhoods were as yet quite intact. Thus in Jenning's Buildings, a low Irish nest in the healthy suburb of Kenisngton, there was a very fatal atack of the pestilence in the beginning of 1849; and about the same time, a similar occurrence took place in two of the lodging-houses of the Mint of Southwark. "The beds," says Mr. Grainger, "were placed in every possible direction, occupying not only the rooms but the landings on the stairs and passages; the people were huddled together two, three, or more in a single bed, children occupying the foot and the adults the top of the same bed. Some of the houses I examined professed to receive 100 lodgers, others sixty. All this causes an oppressiveness and stench utterly insupportable to strangers," and inevitably productive of disease.

It is in such dens, that the cholera made almost invariably the most dreadful devastations; and as actual narratives always leave a more lively and lasting impression than any general description, we shall give one instance out of many which might be quoted of such a catastrophe. It occurred at Plymouth, in a locality that has long been notorious for its being the abode of sickness and vice. The situation itself is by no means hemmed in, nor are the houses packed together as in the dense parts of our large towns; indeed Quarry Court, where the greatest mortality occurred, is open in a measure to the fields. The dreadful evil was the overcrowding in rooms which had no means of ventilation. "One room, where sixteen persons dwelt, was only eight feet four inches square; while another, where nineteen persons ate, drank, and slept, was only eleven feet by nine." In the former instance, each person had scarcely forty cubic feet of air allowed for respiration! This is even worse than in the worst parts of that sink of misery and hotbed of disease. Church Lane, St. Giles', where—according to the report of the Statistical Society, published two or three years ago—the smallest space to one person was fifty-two cubic feet, the average being 175. The particulars are detailed by Dr. Roe, who was so actively and honourably engaged during the whole time that the epidemic continued in the town, and are contained in a series of excellent papers now publishing in the 'Medical Times:'

"On the night of July 9th the great outbreak in Stonehouse Lane took place, and between that time and the 17th there were sixty four deaths in a circle, the diameter of which did not exceed eighty yards. The inhabitants of that dismal place were chiefly Irish, of the lowest and most degraded class, herded together like cattle, ragged, half naked, and inconceivably filthy; dead to all proper feeling, even the scenes around them made no good impression, for they stole the spirits and every thing they could lay their hands on, even the blankets from off the dying. Situated as they were in small, close, and overcrowded rooms, it was impossible to afford the assistance their necessities demanded, and the difficulty was increased by the determination of the living to retain the dead, sometimes until long after decomposition had been established, for the sad but noisy obsequies of their country and religion. . . . Of one family, consisting of nine persons, four died; and in another house a whole family, root and branch, was swept away. The dead and the dying lay together in one small room, which was in so horrible a condition, that when the bodies were removed, the only way it could be cleansed was by introducing the hose of a fire engine through the windows, and washing all down stairs . . . . . The consternation among all classes, when the facts were made public, was such, that not only none in the town would receive those who desired to fly from the infected place, but when the attempt was made, the fugitives were, if discovered, driven back to the scenes of death whence they had in vain endeavoured to escape. This feeling was manifested even in those parts of Stonehouse Lane which the cholera had not yet invaded, and where the proprietor of a lodging-house was threatened to have his house torn down about him if he did not turn out two poor creatures who had hastened from the pestilence, and sought shelter with him; reluctantly he complied, and 'I saw them,' says Dr. Roe, "hooted back to the plague spot whence they came.'"

Numerous and conclusive observations on the effects of overcrowding, in exciting a virulent development of the choleraic poison, might be quoted from the writings of our East India practitioners. Mr. Kellie, for example, the author of a most interesting paper published in Mr. Rogers's 'Reports,' noticed in our Number for January, 1849, says:

"The disease commits its greatest ravages in crowded ill-ventilated barracks, bazaars, densely-populated towns,—particularly such as are surrounded by walls preventing the ingression of pure air, and in that portion of them where carbonic acid gas (?) is by the decomposition of animal and vegetable refuse being evolved,—crowded school-rooms, the inhabitants of a portion of a barrack in the vicinity of an open drain: native huts, into which there is but one opening, and that closed at night; whole families are frequently swept away from their exposure to this exciting cause."

Wherever large assemblages of people, for example, at native festivals or in crowded camps, are brought together in places where the seeds of the poison are known to be usually found, there is the disease apt to appear, though the district may have been quite healthy before:

"At Juggernaut it is an annual visitant, The town Pooree contains 35,000 inhabitants and the number of pilgrims sometimes amounts to 150,000. The inhabitants are usually quite healthy before the occurrence of the festival, which takes place in June or July: but immediately on the arrival of the pilgrims, and when the lodging-houses are literally crammed with inmates, cholera suddenly breaks out, and in the space of a few days hundreds are cut off by it. This is not an occasional or incidental occurrence, it is an invariable one; and the disease, which had thus been generated, as suddenly disappears on the dispersion of the crowd, a few isolated cases only occurring for two or three days after the departure of the pilgrims."

[The next determinate cause of the invasion of cholera, is the vitiation of the atmosphere from *putrid effluvia.* Some persons seem to imagine that emanations from putrescent matters are perfectly harmless, nay, in some cases, even beneficial; but the following evidence appears to prove that such was not the case during the recent epidemic:]

"Immediately opposite Christchurch Workhouse, Spitalfields, belonging to the Whitechapel Union, and only separated from it by a narrow lane a few feet wide, there was in 1848 a manufactory of artificial manure, in which bullock's blood and night-soil were desiccated by dry heat on a kiln, or sometimes by mere exposure of the compost to the action of the sun and air, causing a most powerful stench. The workhouse contained about 400 children and a few adult paupers. Whenever the works were actively carried on, particularly when the wind blew in the direction of the house, there were produced numerous cases of fever, of an intractable and typhoid form; a typhoid tendency to measles, small-pox, and other infantile diseases, and for some time a most unmanageable and fatal form of aphthæ of the mouth, ending in gangrene. From this cause alone twelve deaths took place among the infants in one quarter. In the month of December, 1848, when cholera had already occurred in the Whitechapel Union, sixty of the children in the workhouse were suddenly seized with violent diarrhœa in the early morning. The proprietor was compelled to close his establishment, and the children returned to their ordinary health. Five months afterwards, the works were recommenced; in a day or two subsequently, the wind blowing from the manufactory, a most powerful stench pervaded the workhouse. In the night following forty-five of the boys, whose dormitories directly faced the manufactory, were again suddenly seized with severe diarrhœa; whilst the girls, whose dormitories were in a more distant part and faced in another direction, escaped. The manufactory having been again suppressed, there has been no return of diarrhœa up to the present time. In the summer of 1847, a similar manufactory was established in the parish of St. George, Southwark, in the midst of a dense population. It is stated that on the very first occasion when the operations of this manufactory were commenced, a most powerful stench pervaded the neighbourhood, so as to attract general notice, and that soon afterwards a large number of persons living around were suddenly seized with diarrhœa."

The supervention of bowel disorders upon exposure to putrid effluvia, is of common occurrence at all times, especially during warm weather. Severe attacks of diarrhœa, and even of dysentery, often occur on board ship, when the smell of the bilge water has become more than usually offensive; and the men sleeping near the pumps are generally observed to suffer most. Medical students are frequently obliged to discontinue their attendance at dissecting-rooms, when these are not properly ventilated, in consequence of loss of appetite and irritation of the bowels. The same effects were experienced in a marked degree by Dr. Lewis, from the offensive atmosphere of the crowded church vaults in the metropolis, as related by him in the Interment Report of the Board of Health. Again, the emptying of a cesspool is often followed by diarrhœa among some of the inmates of the house; occasionally it has induced alarming attacks of enteric disease. The case of the Boarding school at Clapham, many years ago (before the first visitation of cholera), will be remembered by some of our readers. The facts were these: a foul cesspool had been opened, and its contents spread over a garden adjoining the playground; this was in the month of August. Within the course of two or three days, no fewer than twenty-two of the boys were seized with alarming symptoms of violent irritation of the stomach and bowels, subsultus of the muscles of the arms, and excessive prostration of strength. Two cases proved fatal. If such an event is liable to take place in ordinary seasons, how great must be the danger when the choleraic poison is abroad! The reports of Mr. Grainger and Dr. Sutherland abound with the most painful illustrations of the fact.

[Dr. Gavin places the accumulation of ordure as one of the principal causes of filth.]

In one court in St. Giles, Lascelles-court, consisting of ten or twelve houses, seventeen deaths took place within a fortnight. It is one of the most disgusting places imaginable. Besides other causes of insalubrity, there is but one privy for the use of all the inhabitants, eighty or ninety in number; it is usually overflowing, and the surface of the pavement is bestrewed with excrement, and reeking with urine. Not a breath of air can reach this court, except by downward and upward interchange; so completely is it hemmed in on all sides. Shall we continue to wonder at the ravages of disease, while such enormities abound?

The west-end of London has its plague spots, as well as the middle and the east; and, if Whitechapel has its manufactories of ordure, and Bethnal Green and St. Giles their loathsome abominations in courts and streets, Notting Hill has its "Potteries," or, as they would more appropriately be called, its "Piggeries," from the vast number of swine (3000 it is said) that are kept there in the most disgusting filth. It is scarcely possible to give an idea of this place, in the immediate neighbourhood, too, of handsome villas and rows of stately houses. The dwellings, or rather hovels, in which the people live, are unsurpassed in nastiness by anything known in Ireland. The streets, courts, alleys, and yards, are without a drop of clear water; there are no sewers in any part of the locality, and all the drainage of the pigsties and privies is left on the surface, close to the very doors and windows of the houses, or flows lazily into a large stagnant pond, called the "Ocean," which is covered with a filthy slime, and is continually bubbling with putrescent gas. The atmosphere is of course constantly charged with the most offensive effluvia. What the result of such a state of things has been on the health of the residents, is shown by Dr. Lewis's report.

No sets of cases are more interesting and suggestive in a sanitary point of view, than those in which very partial and circumscribed outbreaks of zymotic diseases occur in districts that are noted for healthfulness, and for general exemption from their ravages. Of such outbreaks, the late epidemic afforded some striking examples:—In Highgate, with a population of about 3000, only six cases of cholera occurred, and all of them among the members of one family, living in two adjoining houses, situated at the top of Swaine's-lane. This is a place which has long been noted among the inhabitants for its offensive nuisances, and which Mr Moger, the medical officer of the district,—knowing that it was almost invariably the *habitat* of whatever epidemic disorder happened to be prevalent,—felt so convinced would be the spot attacked by cholera if the pestilence should visit Highgate, that he had made, in the course of the preceding summer, repeated complaints respecting it to the Board of Guardians, in the hope of correcting its sanitary condition; but without avail. Besides a large cow-shed on one side, where an immense accumulation of dung was collected, there was on the opposite side of the lane, in the backyard of the house where the first cases occurred, a foul overflowing privy, immediately facing and within a few feet of the door. The stench of this was horrible, Mr. Moger stated, especially at night, when he had to remain some time in ther room with his patients, while the disgusting effluvium from the filthy cow-shed opposite quite sickened him as he approached the house.

Equally instructive is what took place at Hampstead, where, during the season, only nine fatal cases of cholera occurred. One was in the person of a gentleman who had fled from his house in Albion-terrace in the Wandsworth-road to the well-known inn, Jack Straw's Castle, on the top of the Heath, in the hope of escaping the pestilence; but the disease was already in his system and he died on the following day. Of the remaining eight cases, no fewer than six (of which four were fatal) occurred in a family living in rooms over a stable,* in the rear of the George Inn, near Downshire-hill. "At the stable door was a dung-pit, which had not been emptied for some weeks; in the stable, in addition to the ordinary sources of impurity, there were three or four pots to collect the urine of the animals, and usually emptied twice a week. In the yard at the rear, and into which one or two of the windows looked, was a privy that stunk abominably, and within two or three yards of it a pigstye, scarcely less offensive; the privy had been most injudiciously emptied out, a day or two after the first death took place."

There is certainly not a more frequent or more perilous source of mischief during the prevalence of epidemic disease, than foul and obstructed drains; and it is unfortunately the fact that the construction of these works has hitherto been so very faulty, that in many parts of the metropolis, as well as in every town and city throughout the kingdom, instead of being conduits for the removal of decaying refuse, they are no better than elongated cesspools, which detain their stagnant contents, and regurgitate their noxious effluvia into the interior of the houses with which they are connected. Every one who has been in the habit of visiting the dwellings, not of the poor only, but also of many of the respectable working classes and of small shopkeepers, must be aware how disgusting is the stench from the drains, more especially in certain states of the atmosphere—the very states, be it observed, that are apt to prevail in sickly seasons. What then must be the condition of such dwellings at night, when all the doors and windows of the house are closed, and ventilation is thus most effectually prevented, and when the atmosphere of the rooms is moreover vitiated by the respiration of the numerous inmates? So thoroughly bad is the state of the drains in most of the humble districts in every town, arising from ignorance and neglect in the mode of their construction, that it would be infinitely better if there were no such works at all, and if the removal of house refuse was effected by systematic and regular scavenging.

Nowhere were the pernicious effects of stinking mud more conspicuously displayed, than in that horrible locality, which is described in the following passage by Mr. Walsh; to whom, aided by Mr. Martin, the district surgeon, many of the wretched inhabitants were indebted for a supply of water during the height of the epidemic:

"Jacob's Island is the name given to a portion of the parish of Christchurch, Bermondsey. It is surrounded by the tidal ditch or mill stream. In the island and on the banks of the ditch are 300 or 400 houses. The drains and sewers of all the houses that are drained empty themselves into the ditch. The refuse of the neighbouring houses and the contents of their privies are also thrown into the almost stagnant water. One hundred and fifty of the houses have no water-supply whatever; many of the inhabitants are in the habit of using the water for cooking and other purposes; nay, even drink it unboiled. Some of the houses are totally unsupplied with water from any other source than the ditch; a few have wells which communicate with it. The analysis shows the immense quantity of organic matter which it contains. The ebb and flow of the tide are regulated by a floodgate; the occupier of the mill lets the water in and out as he pleases: sometimes it is retained for many days, and sometimes the bed is nearly dry for the same length of time. The foulness of the water and of the mud at these times is incredible. Dead animals abound in it."

---

* The disease was observed in several instances to be extremely virulent in such dwellings Three fatal cases occurred in a room over a stable in Paradise-place, St. Pancras: "The floor was full of openings, so as readily to admit the foul effluvium to pass through." Two instances of the *foudroyant* form of the disease, where the patient is struck down as by the deadly poison, and dies without vomiting or purging, are mentioned by Mr. Cooper, of Southampton; the victims lived in rooms, underneath which was an immense accumulation of dung. Many other instances might be adduced.

No description by word or pen can give the reader an adequate idea of the disgusting scene, whenever the water is low, in the foul tidal ditches; it must be seen to form an idea of it. The existence of such a state of things in our metropolis is a disgrace to us as a Christian people, and cannot but call down a judgment from Heaven. And what, pray, is the constant amount of sickness and death among the inhabitants of this place, but a judicial warning to our rulers? The people themselves, from long habit, seem to have become nearly indifferent to the abominations around them. Whoever reads with any attention the weekly reports of the Registrar-General, cannot fail to have noticed the numerous deaths that are continually occurring there. It was, of course, severely visited by the terrible "inspector of nuisances," on its late, as well as its former visitation. Mr. Walsh says:

"In 1832 the earliest fatal cases of cholera occurred close to this ditch; in 1849, also, the earliest fatal cases occurred here: diarrhœa and cholera abounded; hardly a house escaped, perhaps not one. On the south side of an irregular square, formed by the tidal ditch and its immediate neighbourhood, there occurred between June and October forty one deaths, in the centre twelve, and on the west side eight, making a total of sixty-one deaths."

The following Eastern picture forms a suitable pendant to that from the shores of the Thames:

"Cholera," says Mr. Rogers, "may prevail amongst the inhabitants of some streets in a town to a great extent, whilst the neighbouring streets and the whole of the surrounding country are free from it. I have several times known such an occurrence in Madras. The Coom river winds very circuitously through Madras, and in its meanderings it nearly encircles the village of Chintandrepett. This river was made a necessary of by hundreds of natives daily throughout the year; and when the monsoon was heavy, and the bottom of this Augean stable was thoroughly cleansed, no ill resulted from it; but if the monsoon failed, and the river remained uncleansed, when the hot weather returned, the water became low, and the filth at the bottom was exposed to the heat of the sun, the smell was most offensive, *and an attack of cholera was the certain result, its only victims being the inhabitants residing within a short distance of its banks.*"

[As the influence of a humid atmosphere in the predisposition of cholera has been very generally recognised, we may mention as a third determinate cause—*dampness.*]

The exceeding moisture of the atmosphere just before the outburst at Kurrachee, is noticed by Mr. Thom; and the same thing has been observed on several other like occasions. It is to be remembered, however, that atmospheric humidity, like atmospheric heat, is far from being a constant accompaniment of the prevalence of cholera. Allusion has already been made to the physical condition of the rock of Bellary, and of the country round. It is also to be remarked that, during the height of the late epidemic in the metropolis, the air was unusually dry. But then—and this is a point meriting particular attention—it was very close and oppressive, and so stagnant, that when there was a strong breeze blowing at the top of the Observatory at Greenwich and over Blackheath, there was not the slightest breath of wind on the banks of the Thames. This stagnant motionless state of the atmosphere, especially if associated with considerable heat, is the most pernicious of all to health. Putrid effluvia are not dissipated or dispersed, while the process of putrefaction appears to go on with unusual activity; and the vapours exhaled from a river, canal, or ill-drained ground, rest like a thick fog over the spot whence they have risen. From what we observe of vegetable blights, it is probable, too, that the molecular germs of zymotic disease are more rapidly developed under the meteorological conditions now noted. In tropical countries, dysentery more especially is extremely apt to occur immediately after such weather. But whether this conjecture be correct or not, there can be no doubt that the body is then peculiarly susceptible of morbid action. All the eliminating operations, without exception, are imperfectly or irregularly performed. but probably the functions of no organ or system are so much deranged and impeded, as are those of the skin. Attention has not been sufficiently drawn to the important part which the cutaneous tissue plays in relation to health and disease. In addition to a very large amount of watery vapour (thirty oz. on an average per diem), thrown off by perspiration, there is from the skin, as from the lungs, a constant discharge of excrementitious matter, amounting, it is believed, to nearly two oz. in the course of twenty-four hours. In close foggy weather, the perspiration clings to the surface, and the function of excretion is of course obstructed. But besides the retention of effete matter thus induced, the redundant animal heat of the system is not duly carried off, in consequence of the diminished amount of cutaneous evaporation; and a state of feverishness and irritability is necessarily the result. Nor can we wonder at this, when we learn that it has been found by experiment, that, from a surface equal to a disc of six inches in diameter, with the dew point at 83°, and a temperature of 90° in the shade, the evaporation per minute would be equal to half a grain in a calm, 1·40 in a moderate breeze, and 2·10 in a brisk wind; thus making the quantity of fluid removed from the system to be nearly three times in a moderate breeze, and upwards of four times in a fresh wind, as much as in a calm or stagnant state of the atmosphere. The dreadful distress from a hot, moist, and stagnant atmosphere, in a tropical country, is well described by Mr. Thom.

Besides the extreme languor and inability for exertion, the oppression of breathing, &c., we read of "the body being bathed in perspiration, and the skin corrugated, as if it had been immersed for a long time in water," less from the excess of perspiration than from the suspended evaporation.

But the skin, like the lungs, is provided with absorbing as well as with exhaling vessels. The activity of the cutaneous absorption is much influenced by the condition of the body, being less after a full meal than when fasting; also by the state of the air; for—the very reverse holds true of the excretory function—it is much greater in a moist than in a dry atmosphere. This point deserves especial notice: viz., that atmospheric moisture appears to stimulate the action of the cutaneous absorbents, and at the same time to impede that of the exhalants; whilst, vice versâ, in dry weather, the exhalation from the surface goes on with energy, while the absorbing process is comparatively inactive. This physiological fact has a bearing on our present inquiry. It has been suspected by some experienced observers, that marsh miasmatic and other forms of malarious poison finds admission into the system chiefly by the skin, and several facts render the idea far from being improbable; at all events, every one recognises the great importance of protecting the surface with woollen clothing, as one of the most approved preservatives of health in agueish localities. Moreover, it is not irrelevant to remind the reader, that a very large majority of choleraic seizures take place at night, or very early in the morning; and it need scarcely be stated, that the potency of all miasmata has invariably been recognised to be greater after sunset, more especially when the evenings are very humid. That the aërial poison has a tendency then to descend with the atmospheric moisture nearer to the surface of the ground, is rendered probable by many circumstances; and, among the rest, by the greater insalubrity of ground-floor and basement rooms, than of higher ones, for sleeping apartments; although it is not to be forgotten, at the same time, that the former are less removed from the seat of most domiciliary nuisances. Without, however, dwelling at present on these and other kindred points, we shall only remark, that it is of first-rate importance to maintain a circulation of air—warm and dry, if possible—through all sleeping rooms, during the prevalence of an epidemic disease like cholera. With this view much good has been obtained from keeping a small fire continually in the chamber; also from the use of Dr. Arnott's valves, air-bricks in the walls, &c.

[Under a fourth division of causes may be mentioned—impure water, unwholesome or insufficient food, intemperance, and fatigue, from whatever cause induced.]—*Brit. and For. Medico-Chirurg. Review, Jan.*, 1851, *p.* 2.

# A SYNOPSIS,

CONTAINING

A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOREGOING PAGES OF THIS VOLUME; AND SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

## DISEASES AFFECTING THE SYSTEM GENERALLY.

Diaphoresis.—Hot water applications seem to be a very valuable means of producing diaphoresis in fevers. The application is made repeatedly to the stomach and upper part of the abdomen, and the patient covered carefully over with blankets, which are closed round the feet and throat, so as to confine the heat thus generated. (Mr. Bulley, *Med. Times*, Dec. 21, 1850, p. 659.)

Rheumatism.—Dr. Golding Bird, where the joints are exquisitely tender in rheumatic fever, uses soda poultices, the ordinary linseed poultice made with a solution of carbonate of soda instead of plain water. (See p. 49.)

*Acute.*—Remarkable benefit seems to have resulted from the employment of lemon juice in these cases. There are some cautions, however, to be observed in its administration, as all cases do not seem adapted for its employment. There are two kinds of rheumatic cases in which it decidedly fails, those of a cachectic and those of a syphilitic character. In these cases where it has assumed a gouty character, with deposits of lithate of soda in and about the smaller joints, the continued use of lemon juice combined with small doses of sesquichloride of iron have been attended with remarkable benefit, deposits being frequently absorbed which have resisted all other modes of treatment. With regard to the dose in acute rheumatism from ℥j to ℥ij, should be given every four or six hours, and should pain be felt in the bowels, or diarrhœa occur, which is very rarely the case, four or five minims of tincture of opium may be added to each dose of the remedy. (Dr. G. Owen Rees, p. 49.)

The application, locally, of the Dutch liquid to the joints in this disease is highly recommended. A moist compress sprinkled with the agent, is applied and renewed once in twenty-four hours, being enclosed in impervious bandages so as to prevent its evaporation. It is to be applied to each joint in succession as it becomes inflamed. The complications of rheumatism may be treated on general principles at the same time. (Dr. Aran, p. 51.)

*Tropical.*—The indications of treatment in both Tropical and European rheumatism, are,—1st. To subdue constitutional irritation and fever by narcotics and refrigerants. Although blood-letting is of undoubted efficacy in a general inflammatory diathesis, yet, as the general tendency of rheumatism is to anæmia, we must not waste carelessly the nutritive resources of the constitution. We must be guided by the state of the blood clot, and its effects in mitigating the fever and subduing irritation. The temperament and habits of the patient must also be considered, as well as the climate and locality in which he is situated. After bleeding, give ten grains of nitrate of potash, with small doses of antimony and citrate of potash, three or four times a day; or it may be combined with nitrous ether and other diuretics, the intention being to subdue heat and irritation, by restoring the normal excretory functions of the skin and kidneys. The great utility of nitrate of potash seems to be dependent on its power of diminishing the plasticity of the blood, and suspending the metamorphic disposition of the blood globules to produce fibrine. Its effect may be increased by the addition of anodynes at bed-time, such as opium and aconite.

The 2nd indication named, is to eliminate from the system certain cholæic elements, and other excrementitious matters of the blood, which render the urine acid and occasion in it lithic deposits. To fulfil this, calomel and Dover's powder must be given at bed-time, followed next morning by a solution of the sulphate of magnesia in compound senna infusion, with the addition of an alkali, and colchicum, will be found most useful. Colchicum is stated to be most useful in cases of acute disease, accompanied by a foul loaded tongue, biliary derangement, and intestinal mucous accumulation. The best mode of administering it in India is to give the wine of colchicum twice or thrice a day in a weak solution of tartarized antimony, along with liquor potassæ, and the tincture of the hydrochlorate of morphia. Where diarrhœa or the purgative effect of colchicum is established, there the amount of urea and uric acid in the urine appears to be diminished, these compounds being apparently eliminated by the intestinal evacuations. Contrary to general opinion the use of colchicum appears to have very little diuretic action, and to produce little effect upon the constituents of the urine. It augments the activity of the skin and lungs in exhaling carbonic acid, and after a time its effect in causing an augmented secretion of bile becomes apparent; the melanotic blood globules which are unable to combine with the oxygen of the air being destroyed in the hepatic system afford materials for an augmented secretion of bile. Calomel should be given rather to produce its purgative effects, than with opium to produce its constitutional effect. In this manner it will be found of much utility by depurating the blood through the increased biliary secretion, in those hyper-carbonized states of the system associated with the disease in many instances.

The 3rd indication is to restore the conditions of normal nutrition by suitable diet of the stheno-phlogistic kinds, and by iron, cod-liver oil, and tonics, when the rheumatic symptoms are associated with cachexia.

This indication is chiefly related to cases of the astheno-cachexial kind. For its fulfilment in the early stage of the disease, the food should consist of gruel, thin arrow root with milk or weak broth, and and if beef-tea be allowed it may be given with the addition of twenty or thirty minims of liquor potassæ, the alkali serving to to neutralize the lactic and other acids, which accumulate in the stomach along with diseased mucous secretions. When cachexia appears, we must have recourse to bark, sulphate of quinine, preparations of iron, or iodide of potassium, all of which operate beneficially upon the constitution, by improving the tone of the organs of primary assimilation, modifying the nutrition of the tissues, and increasing the hæmatine of the blood. A combination of these remedies may be given in particular cases, where the administration of one alone would completely fail.

The last indication is to subdue local symptoms of swelling and pain, by leeching, cupping, and blisters, followed by anodyne applications or local anæsthetics. If these are of a muscular kind, strongly stimulating terebinthinate liniments, warm fomentations, and shampooing of the parts, will be found beneficial in relieving the pain. When the joints suffer, and are much swollen, leeches and repeated blisters are the best applications. The blistered surface may be dressed with an ointment containing small quantities of the hydrochlorate of morphia, or extract of belladonna. A wet bandage, saturated with a lotion of camphor mixture, wine of colchicum, and tincture of the hydrochlorate of morphia, covered over by cotton wool and a piece of spongio-piline to prevent evaporation, will be found of great utility. A lotion of Dutch liquid has also been stated to be of great use, in relieving the pain and swelling of the joints. (Dr. James Bird, p. 414.)

Scarlet Fever.—Give belladonna in doses according to the ability of the patient to bear it, of half a grain to a whole grain every three, four, or six hours, dissolved in water; the dilatation of the pupil and the amount of stupor produced being the basis of discrimination, not allowing any symptom, even low delirium, to deter its administration. In no case has the ordinary sequelæ followed. (Dr. J. Gardner, p. 16.)

Use the powder of belladonna leaves. For persons above puberty give one sixth of a grain in mint water every four hours; for children rub one grain with five of liquorice powder, and of this give one-sixth or one-twelfth of a grain in water every four hours; for infants it should be used in extremely minute doses as it may bring on a spasm of the larynx, and kill the child. A gargle of the sulphate of copper, one grain to an ounce of warm water, or camphor mixture used every hour, is very good. (Mr. T. J. Green, p. 17.)

*Malignant.*—Administer frequently according to the age and malignancy of the case one or two tablespoonfuls of fresh yeast. It is quickly efficacious as an antiseptic and a stimulant. (Mr. Bennett, p. 18.)

SMALL POX.—Apply over the pustules, both in simple and confluent small pox, a layer of collodion; the progress of the pustules are arrested. In a few days the collodion peels off, the skin looking as after erysipelas. (M. Aran, p. 366.)

TETANUS.—In three cases of this dreadful disease the cannabis indica seemed to answer effectually. In other cases of the disease, although it failed to cure, it never failed to relieve. The dose was three grains of the extract, or thirty drops of the tincture, to be repeated every half hour, hour, or two hours; the object being to produce and maintain narcotism. There is a very marked tolerance of the remedy. (Professor Miller, p. 359.)

A case of this disease has recently been treated locally, and with the best success. It was traumatic, arising from an injury to the ball of the thumb. The jaws became closed with slight general tetanic symptoms, a blister was applied over the back of the hand, and acetate of morphia, and afterwards the tincture of aconite were applied until ♏xv of the last were applied at one time. There remained a contraction of the flexors for sometime, but this was removed by a splint. (Mr. Eddows, p. 408.)

## AFFECTIONS OF THE NERVOUS SYSTEM.

APOPLEXY.—As there are evidently two distinct kinds—plethoric and anæmic—we must use our judgment in a great measure from the distinctive characters. But if neither of these indications are present it will be most prudent to use local bleeding. Apply cold to the head—administer an active purgative, and above all enjoin quietude. (Prof. Bennett, p. 69.)

CHOREA.—The sulphate of zinc has been extensively used as a remedy for chorea, in Guy's Hospital, and it is stated with remarkable success. The dose has been increased even up to thirty-six grains, three times a day. "Zinc has a similar peculiar influence on the nervous tissue, as iron has upon the blood." (Dr. Golding Bird, p. 78.)

Apply a liniment composed of several parts of chloroform and oil of sweet almonds, along the course of the spine night and morning. (M. Gassier, p. 81.)

DELIRIUM.—Dr. Todd lays great stress upon the danger of moving patients in a state of delirium, or recovering from it; and mentions some cases in which death immediately resulted from this caution not being observed. (p. 104.)

INSANITY.—Tartarized antimony may be given in this disease in large or small doses. In a large dose it may suddenly cut short the fit, but it should not produce vomiting. In a small dose it produces nausea, and thereby, an indirect sedative effect. There are certain precautions to be attended to—in some it acts powerfully, and in others scarcely at all, and in many it exerts a cumulative power suddenly producing poisonous effects. (Dr. Fleming, p. 110.)

**Neuralgia.**—Quinine, given in doses of ten grains or upwards, acts as a sedative to the vascular, but highly excitant to the nervous system. First clear out the bowels by a calomel and colocynth purgative, followed by a saline draught, and then administer the following every six hours.—Sulphate of quinine, ten grains; dilute sulphuric acid, ten minims; distilled water, one ounce. (Mr. C. Hogg, p. 91.)

*Neuralgic and Rheumatic Pains.*—M. Recamier treats these by what he has called the "galvanic poultice." One part consists of a piece of cotton wool, containing one layer of minute fragments of zinc and another of copper. This cotton, properly sewn up, is placed in a bag, one surface being of cotton, and the other of air-tight tissue. The permeable surface of the bag is then applied to the skin and fixed by a roller or a towel; heat is soon developed, the perspiration retained by the air-tight texture accumulates; it moistens the bag, and this moisture, which is acid, acts on the zinc and copper placed on the cotton wool. Electricity is thus given off to such an extent that it acts like a mustard poultice, though there is no pain, but merely a pricking feeling of warmth. (M. Recamier, *Lancet*, Jan. 25, 1851, p. 90.)

## AFFECTIONS OF THE CIRCULATORY ORGANS.

**Arteries,** *Exposure of.*—Mr. Skey almost invariably adopts an oblique incision, generally at an angle with the artery of 45°. His reasons for doing so are fully stated at page 178. His objection to a directly transverse wound is, that the artery is exposed only in a transverse line, by which nothing is gained, but much may be lost. In the femoral, brachial, radial, ulnar, and posterior tibial, indeed, he considers the oblique incision to be an important element of success in finding the artery with facility. (Mr. F. C. Skey, p. 178.)

**Endocardial Deposits.**—Are the deposits of fibrinous matter so frequently found upon the valves of the heart produced from inflammation of the lining membrane? or, are they precipitations of fibrine owing to the blood containing more than its normal proportion? Opinions upon this subject seem divided. Nitrate of potash, however, has been strongly recommended in rheumatic fever in which the fibrine is in excess, and apparently with justice, on account of its well-known property of dissolving fibrine, preventing fibrinous concretions on the valves, by increasing the solubility of this material, and diminishing its liability to precipitation. (Mr. Simon, *Lond. Jour. of Med.*, April, 1851, p. 343.)

**Hemorrhage.**—No agent is at all comparable in its power to arrest bleeding from small vessels like rest and exposure to air. The surgeon who has least fear of hemorrhage loses the least blood. "A small wound may be tortured by styptics, by compression, and by other unprofitable agents, till it becomes the fruitful source of hemorrhage." Instances are recorded of the most alarming cases of hemorrhage being at once arrested by the wound being freely exposed to the air. (Mr. F. C. Skey, p. 178.)

## AFFECTIONS OF THE RESPIRATORY ORGANS.

ASTHMA.—Give a quarter to three grains of the extract of stramonium, or from ten to thirty minims of the tincture, or the various parts of the plant may be smoked in a pipe, or the leaves alone rolled up in the form of a cigar. Ether in combination with opium will often prove of great service. (Dr. Todd, p. 132.)

HÆMOPTYSIS.—In hemorrhage from the lungs or uterus, give small doses of ipecacuanha combined with acetate of lead and opium. (Dr. Jenner Coxe, p. 373.)

PHTHISIS PULMONALIS.—Do not let the patient breathe an atmosphere warmed by stove-heat, even although equable in its temperature; it is stated to be extremely prejudicial. If the patient cannot rest at night for coughing, give gr. iv. of the ext. of hemlock, with gr. ss. of ipecac., and one-eighth gr. of muriate of morphia, at bed-time. Immediately on the first suspicion of pulmonary consumption, give the cod-liver oil, commencing with ʒj for a dose, three times a day, and seldom exceeding ʒ iv. Counter-irritation is of essential importance: employ a solution of ℥j of iodine and iodide of potass. to ℥ij of spirits of wine. Use it first on one side and then on the other, even if one lung only is affected. By these measures the cough is allayed, the weight is increased, rest is procured, and counter-irritation is set up. Collateral symptoms must be met as they arise; if hectic fever or hæmoptysis appear, we must suspend the oil. (Dr. Hutchinson, p. 119.)

RESPIRATORY AFFECTIONS *in Children.*—As an emetic and expectorant, in many of the affections of the respiratory organs of children, give ipecacuanha. (Dr. Jenner Coxe, p. 373.)

---

## AFFECTIONS OF THE DIGESTIVE ORGANS.

CLEFT PALATE.—It is from fibres of the levator palati muscle, and not from those of the tensor palati, that so much trouble frequently arises in producing union of the wound after the operation for cleft palate. It is absolutely necessary, therefore, to divide this muscle in the operation; it is frequently very detrimental to remove the sutures too early; the stitches had better not be meddled with so long as they appear of any use, they need not be removed after eight and forty hours, as is too frequently the case. (Prof. Fergusson, p. 186.)

DIARRHŒA.—Creosote in the following form has proved very valuable: Creosoti ♏j ad v; sp. ammon. arom. ♏xv ad ʒj; aquæ ℥j ad ℥iss; and where pain has been severe, tinct. camph. co. has been added. (Mr. W. B. Kesteven, p. 144.)

*Chronic.*—In chronic diarrhœa give small doses of ipecacuanha, repeated several times a day. If dependent upon derangement of the biliary secretion, unite it with two or three grains of blue pill, repeated for three or four nights (Dr. Jenner Coxe, p. 373.)

*Scrofulous.*—The most striking and satisfactory results may be obtained by administering six to ten grains of the phosphate of lime per diem. (Dr. Beneke, *Lancet*, April 19, 1851, p. 434.)

Diphtheritis.—Locally use a solution of nitrate of silver, never less than ʒj to ℥j, sometimes ʒij., applied three times a day, or oftener, to the tonsils and affected parts, with a piece of sponge fastened to a quill. As to the general treatment give calomel and ipecacuanha, in varying doses from half a grain each, according to the age of the the patient and the severity of the case, every four or eight hours; use emetics in the first stages, in the latter stages they only exhaust. In desperate cases employ the inhalation of vinegar vapour, and the vapour of hyd. c. creta. The local application of nitrate of silver, and the judicious administration of stimulants are, however, most to be relied upon. (Mr. J. D. Brown, p. 134.)

Dysentery.—In cases of dysentery, especially when assuming a typhoid character, give ipecacuanha. (Dr. Jenner Coxe, p. 373.)

Fistula in Ano.—This disease has recently been treated successfully by the platinum wire made red-hot by a galvanic battery. One end of the platinum wire was introduced into the fistulous tract, and was made to reappear at the anus; the two ends were then connected with the poles, the circuit completed, the wire became red-hot, and was gently brought downwards dividing all the interposed tissues, and cauterizing them so effectually as to prevent any amount of hemorrhage. The only dressing used was a piece of lint dipped in cold water, applied externally. The whole tract heals rapidly from the bottom after the casting off of the eschar, which separation generally takes place in a few days. (Mr. Marshall, p. 397.)

Hare-Lip.—In some observations made by Professor Fergusson, he describes an apparatus introduced by the father of one of his patients, whereby the necessity of drawing the parts together after hare-lip operation is avoided, the apparatus *pushing them* into intimate contact. A drawing is given of this apparatus at page 183.

Hæmorrhoids.—The hæmorrhoidal tumours are to be drawn out by a peculiar kind of forceps, and a platinum wire made red-hot by the galvanic battery is to be applied to the pedicle of the tumour, and drawn slowly across. This is to be repeated for different portions of the growths, and where a little oozing of blood takes place the wire is made to cauterize the part slightly, which measure at once stops the flow of blood. The section should be made slowly, otherwise there may be a little hemorrhage. The forceps alluded to, differ from the usual instrument, in having a ring about an inch in diameter at the end of each branch; when the forceps are closed the rings are superposed, and we gain a very firm hold of the parts to be secured. (Mr. Marshall, p. 397.)

Pass a thin copper or iron wire in the form of a loop made through a double canula around the root of the growth, and strangulate it by drawing the wire tight. The canula may then be retained in its situation for any length of time, from half an hour to an hour or more, and the pile may then be removed with a knife or a pair of scissors. Should bleeding occur, immediate pressure may be made by the finger, or by pads of lint. Serious hemorrhage, however, it is stated, is of rare occurrence. (Mr. F. C. Skey, p. 225.)

Lead Colic.—The internal and external use of chloroform is recommended as a most valuable agent for removing the pain, calming the spasms, and facilitating the action of purgatives in cases of lead colic. (Dr. Aran, p. 146.)

Mr. Brachet employs croton oil in doses of one and a half to two drops, and repeating it for from four to eight days; but it is to *alum* he looks as his sheet-anchor. He prescribes one and a half to two drachms of alum in a ptisan, with forty or fifty drops of laudanum, to be taken during the day; and, if the bowels do not act by the third day, he gives a mild aperient, the alum being continued a day or two after the symptoms have disappeared. (p. 360.)

Lead Palsy.—Brucine is said to possess advantages over strychnine, as it can be administered in larger doses. It may be given in doses of two or three centigrammes (about one-third to half a grain) daily, and sometimes even in doses of eighty centigrammes, but this is rarely necessary. Ten or fifteen centigrammes produce slight twitchings; twenty or twenty-five produce them in a violent degree. (M. Bricheteau, p. 111.)

Obstruction *of the Bowels.*—If the ordinary common aperients have failed, first throw up a large enema; if this is of no avail do not give any more purgative medicines. Endeavour, in the first place, to compose and soothe the mind of the patient. A slight faintness, produced by blood-letting, has often acted beneficially in this state. After these measures the safest plan is to give repeated doses of calomel and opium, the latter in half to one grain doses, every four hours. Wait now until the bowels begin to act, which they generally will do, and when they do, then a small dose of castor oil will do good. Gruel may be taken now, as it prevents the sense of sinking, and probably acts mechanically in propelling the contents of the intestinal tube. In these cases abstain from giving any food by the mouth for some days. The support should be entirely trusted to beef-tea injections, these not exceeding a quarter of a pint, and administered every four hours. If there is difficulty of retention add to them a few drops of laudanum. (Dr. E. Wells, p. 137.)

Prolapsus Recti.—Pass a strong ligature, by means of the crooked needle, through the anus laterally, introducing the needle an inch from the verge of the anus on the left side, and transfixing the rectum at the depth of half-an-inch, making it emerge on the right side, at the same distance as on the opposite. This being done the ligature is firmly tied, and the patient is put to bed with ice applied to the part to prevent undue inflammatory action. This ligature is maintained until its presence has brought on considerable fever, or the pain becomes intolerable, when it is removed, and the ice continued for several days until the cure is completed. (Mr. J. Mackenzie, p. 223.)

**Tænia.**—Forty or fifty grammes (ʒ x to ʒ xiii) of the powder of male fern may be given in divided doses in the morning, and a purgative of castor oil directly after; or two grammes of the oil, with enough powder of fern to make ten boluses, which are taken in the morning an hour between each. (M. Martin-Solon, p. 141.)

[The lengthened process and formulæ used by Schmidt, for the expulsion of tape-worm, our readers will find given at page 143.]

**Ulcers** *external to the Anal Aperture.*—These must be treated by the recumbent position to relieve the hæmorrhoidal veins, keeping the bowels open by castor oil, which acts on the entire course of the intestinal canal, and lubricates the hard exterior of the fæcal mass as it passes through the rectum; and by applying the following ointment: unguent. opii, ʒj; ung. hydrarg. fort., ʒiij., to be applied two or three times a day. (Mr. J. Hilton, p. 212.)

---

## AFFECTIONS OF THE URINARY ORGANS.

**Lithotomy.**—In a complicated case, occurring under Mr. Erichsen, in University College Hospital, the concretion had become permanently or temporarily lodged in the upper fundus of the bladder, behind the pubes, thus eluding the grasp of the forceps. To obviate this condition, Mr. Erichsen directed pressure to be made immediately above the pubes, and succeeded, by this manœuvre, in accomplishing its extraction, with the aid of a curved scoop. Two similar cases are mentioned by Mr. Aston Key, who removed the difficulty in a similar manner. (Mr. H. Thompson, p. 241.)

**Lithotrity.**—No attempt to extract any portion of stone through the urethra should be made with the lithotrite; the operator should be content with crushing the stone in the bladder. If a portion of the stone should become impacted in the urethra, it is much safer to cut down upon it and remove it, than lacerate the urethra by efforts at extraction. (Mr. Charles Hawkins, p. 244.)

**Renal Disease.**—An observation of great importance in the diagnosis of renal disease has been recently made by Dr. Johnson, viz., that disease of the kidney, of a recent acute nature, is indicated chiefly by the presence of fibrinous matter entangling "entire epithelial cells" with albumen, and very commonly, blood; while, on the other hand, "granular particles of disintegrated epithelium" indicate a disease of a chronic character. (Dr. G. Johnson, p. 160.)

**Retention of Urine.**—A case is recorded by Mr. Wakley of retention of urine occurring in a child in which recovery rapidly took place, although the symptoms previously were very alarming after the performance of the operation of puncturing the bladder above the pubes. (Mr. T. H. Wakley, p. 241.)

Stricture of the Urethra.—In a recent paper Mr. Wade lays great stress upon the value of the potassa fusa in obstinate cases of stricture. He only uses it, however, in cases where simple dilatation proved ineffectual, and not like Mr. Whately in all cases indiscriminately. The three cases in which he commonly uses it are—1st. Impervious strictures, which are of a cartilaginous hardness. 2nd. Long standing strictures, which bleed more or less freely on the introduction of any instrument. 3rd. Irritable strictures. The potassa fusa is applied in the ordinary manner by means of a bougie armed with it. (Mr. R. Wade, p. 236.)

[Several *new instruments* for the cure of stricture have recently been introduced to the notice of the profession by Mr. Thomas H. Wakley. Many eminent surgeons have approved of the principle of treatment which their use involves. These instruments are figured and described at page 232.]

## AFFECTIONS OF THE SKIN, &c.

Glandular Enlargements *in the Groin and Axilla.*—These tumours, often met with in young men, and not of a venereal nature, are often exceedingly indolent. Make a tolerably sized eschar with caustic potash in the early stage, and cover it with a small poultice. When the eschar separates the tumour will have disappeared. (Dr. B. G. Darley, p. 373.)

Granulating Surfaces.—To protect raw granulating surfaces from the atmosphere, lay a thick semifluid aqueous solution of gum tragacanth on the raw surface; if it is imperfect in any part repair such by another layer. This application produces no irritation, and being translucent permits a complete surveillance. (Professor Miller, p. 361.)

Itch.—Use a sulpho-alkaline ointment. If there is a great abundance of pustules, and this excites too much pain, use frictions of lard and oil. Another ointment recently tried cures in three frictions, soothes the itching instantly, and does not give rise to any secondary eruption. It is composed of equal parts of fresh chamomiles, olive oil, and lard. M. Bourguignon makes an ointment by mixing 300 parts of the powder of staphysagria to 500 of lard, keeping it at a temperature of 100° C. for twenty-four hours. The frictions to be made four times a day, the cure being complete by the fourth day. (MM. Bazin and Bourguignon, p. 365.)

Lepra, *Syphilitic.*—Give five grains of blue pill night and morning, thus affecting the system slowly and gradually by a mild and unirritating preparation of the mineral. Iodide of potassium favours the mercurial influence, at the same time exercising some specific antidotal power of its own. Hyper-salivation, violent iodism, irritation of the bowels and of the skin, and peculiar nervous affections are produced when too much of these minerals is thrown into the system, with a desire to produce a rapid effect. We may withhold them for a time, renewing them again as occasion may suggest. It is sometimes much more desirable to introduce mercury also by the skin than by the stomach. Tar is also one of the safest remedies—the pix liquida. It may be given internally in capsules, or applied externally, or both. Fifteen or twenty minims may be taken three or four times a day, at the same time the patient may be tarred over the surface, and lie in tarred sheets. This is exceedingly useful, though scarcely available in private practice. (Dr. R. B. Todd, p. 406.)

LUPUS EXEDENS.—Mr. Hunt, imagining that from the improvement in this disease, by the local application of arsenic, being only of short duration, it must have arisen from the absorption of the drug, was led to administer the remedy internally, and the experiment was attended by the best results. In lupus non-exedens the internal use of arsenic was by no means so well marked. (Mr. T. Hunt, p. 357.)

NÆVUS.—Mr. John Adams has suggested, for the obliteration of deep-seated nævi, the employment of a ligature, applied subcutaneously, so as to embrace the whole of the disease without compromising in any manner the superjacent skin. (p. 182.)

PRURITUS.—For the treatment of pruritus of the genital, anal, and axillary regions, first, let an ointment be made of from four to six parts of calomel to thirty of axunge; and second, a powder, composed of four-fifths of starch and one-fifth of camphor, well pulverized and mixed. These may be made stronger if necessary. If the diseased parts are covered with scales or dry crusts, as in eczema, promote their separation by using cataplasms and emollient baths, twice a day, then use frictions with the foregoing ointment, and after them, sprinkle the parts with the mixture of starch and camphor. Both are necessary to effect a cure. If the pruritus occurs during pregnancy, it will often not be relieved until after delivery. If the itching of the anus depends on ascarides use mercurial ointment. (Dr. Tournie, p. 246.)

SCALDS AND BURNS.—If there be the feeling of burning heat in the part we can understand how cold applications would be grateful, and how the case would get well, even though they were not the best, for the powers of the nervous system would, in this case, be intact. But no one would recommend the continued application of cold to a patient labouring under the depression attendant upon a severe burn. It has been held that external applications do good by excluding atmospheric air; but the injury arises not from the irritation of the *air as air*, but from its coldness. Warm air soothes and is beneficial. It is from their effects in soothing the nervous irritability of the injured part, by preserving the nerves from feeling the variations of temperature in the currents of air which would act upon the surface, that such applications as cotton, treacle, flour, &c., are of such great value. (Mr. S. Crompton, p. 421.)

TUMOURS, *Encysted.*—Evacuate the contents by making a small oblique opening on the cyst. Inject then an alcoholic solution of iodine, closing the aperture with diachylon or charpie. As soon as the inflammation has subsided, the cyst becomes detached, and may be extracted by means of the forceps. Usually, however, two or three injections are necessary to promote a complete separation. (M. Borelli, p. 370.)

*Erectile.*—Pass a large red-hot surgical needle, heated by a gas flame, through the base of the tumour. This causes effusion of lymph, alters the structure, and arrests the growth of the tumour. (Dr. Douglas Maclagan, p. 183.)

Occurring *in infants*, pass through them threads steeped in a solution of sulphate of copper, or other caustic astringent. *In children*, make a free opening with a lancet though the centre of the tumour, and the blood being thus removed, cauterize the exposed surface of the tumour strongly with the nitrate of silver, holding it in contact with the tumour for some time. (Dr. Darley, p. 180.)

ULCERS, *Chronic.*—In chronic ulcers, resulting from scrofulous diathesis, give phosphate of lime, in doses of from eight to twenty grains per diem. It should be ordered to be taken with the breakfast, dinner, and supper, so as to be thoroughly mixed with the food. These cases are accompanied always by a want of the proper cell growth, which the phosphate is said to increase in a remarkable manner. The phosphate, nevertheless, cannot be said really to cure the scrofulous dyscrasia, but we shall certainly promote the cure in the most efficient manner by its administration. (Dr. Beneke, *Lancet*, April 19, 1851, p. 431.)

*Obstinate.*—The following mixture has been recommended as being of great utility in these affections:—Tinct. of cantharides, 12 drops; iodide of potassium, ʒss; compound tincture of cinchona bark, ℥j; water, seven ounces. Mix. ℥j ter die; and apply the following lotion:—Tincture of cantharides, twelve minims; diluted nutric acid, twenty drops; compound tincture of cinchona, two drachms; water, one ounce. The tincture of cantharides is of great utility in indolent ulceration, dependent either upon atony of the engaged parts, or system generally. It is useful—1st. Where the granulations are exuberant, but pale, weak, and flabby. 2nd. Where there was deficiency, or total absence of granulations, the ulcers being deep and scooped out, with raised and indurated edges. 3rd. Where the granulations were not defective, but cicatrizing irregularly, sometimes in the centre, at other times on one side, the lymph which was thrown out and organized on one day being absorbed the next. (Mr. J. Tait, p. 410.)

*Cicatrization of.*—A case is related of an obstinate ulcer of the foot from injury, which baffled all attempts to procure cicatrization, but which was remarkably benefitted by the application of the electric moxa as follows:—A blister, the size of a five-shilling piece, was applied six inches above the sac, on which a piece of zinc was accurately fitted. A silver plate was now applied to the original sore, and the two connected with a piece of copper wire. A few strips of plaster supported the apparatus, and the whole was covered with wet lint and a loose bandage. (Mr. Bransby Cooper, p. 368.)

Varicose Veins.—Mr. Skey treats these cases by forming small eschars a little larger than the diameter of a split pea, the number being regulated by the extent and complication of the disease. This is effected by applying a small portion of the caustic paste through an opening made in three or four thicknesses of adhesive plaster. A piece of plaster may be laid, then, over each quantity, and may be removed in from twenty minutes to half an hour. Rest in the horizontal position is desirable, but not essential. The healing of the ulcers, which are sometimes slow and tedious, should be pushed by bark, wine, good diet, and stimulants, if necessary. (Mr. F. C. Skey, p. 179.)

*Varicose Veins and Ulcers.*—These obstinate and disagreeable affections, have lately been treated by the application of a convoluted spiral strap of vulcanized India-rubber, instead of the ordinary uniform elastic apparatus used. If there are ulcers along with the varicose veins,—first wet with a solution of glycerine ℥ss to ℥viiss medicated with a little nitric acid, a little common blotting paper, and apply it over the wound, and over this a pledget of lint or linen wet with the same solution. These may be secured by a turn or two of the calico roller, and over this is placed the convoluted spiral bandage. Mr. Startin, the author of this mode of treatment, states that great success has resulted from its employment. (Mr. J. Startin, p. 345.)

---

## AFFECTIONS OF THE BONES, JOINTS, &c.

Fracture *of the Thigh.*—To obviate the unfortunate tendency which exists in the upper fragment, when the femur has been fractured at the juncture of the upper with the middle third, of being tilted forwards and outwards by the action of the psoas and iliacus muscles, Mr. Wood has recently introduced a contrivance, which seems to have answered the purpose admirably. A description and engraving of this apparatus is given at page 167.

Ganglion.—[An illustration and description of an instrument resembling in some measure a common director in a lanceolate form, enclosed within a cylinder, is given at page 370. It is a modification of that of M. Jules Guerin, of Paris.]

Loose Cartilages.—[At page 342, will be found a minute description of Professor Miller's subcutaneous or valvular mode of removing loose cartilages from joints.]

Periostitis.—In obstinate cases where aggravation and suppuration seem imminent, direct incision is unwarrantable, but it may be done as follows:—Insert a fine bistoury or tenotomy needle, at a little distance from the tense part, passing it over, cautiously, beneath the integument; then turning and pressing its edge, divide the tense membrane wholly to the desired extent; now cautiously withdraw the instrument, making a valvular, oblique, subintegumental wound;

finally close the single puncture immediately, with isinglass plaster, or collodion. (Prof. Miller, p. 344.)

SYNOVIAL MEMBRANES.—Where the joint is greatly and distressingly distended with serum, it is recommended to make a few minute punctures, and apply an exhausted cupping glass; and as soon as pus is known to have been secreted, to make a free incision into the joint. An exploring needle should be first used to make this point certain. The opening should be free and immediate, lest the matter should make its way out of the joint in other directions, and form irregular and circuitous sinuses among the neighbouring tendons and muscles. No pressure to evacuate the matter must be used. If the opening is found not sufficiently large, or matter should again form, the opening must be enlarged, or another made in a convenient situation. (Sir Benj. Brodie, p. 339.)

---

## VENEREAL AFFECTIONS.

BUBO, *Gangrenous.*—Apply a solution of borax, one to two drachms in a pint of water, by means of charpie, so as to cover the edges of the sac. It is essential that it should be applied night and morning. (Dr. Effenberger, p. 259.)

GONORRHŒA.—Inject into the urethra a small syringeful of a solution of chloride of zinc gr. j to the ℥j of water, every six or eight hours. This should be combined in the early period of the disease with the usual anti-inflammatory treatment. The strength of the injection may be increased to as much as three grains of the chloride to the ounce. (Mr. E. A. Lloyd, p. 257.)

GONORRHŒAL OPHTHALMIA.—Make early free radiating incisions of the sclerotic portion of the conjunctiva, as when in a state of intense chemosis this portion is said to strangulate the vessels passing to the cornea, and thereby induce sudden sloughing and mortification. (Dr. Hamilton and Mr. B. Bell, p. 262.)

Occurring *in children* apply a solution of chloride of zinc of the strength of one grain to the ounce. (Mr. E. A. Lloyd, p. 259.)

SYPHILIS.—The mode of employing mercury in the treatment of syphilitic sores by Mr. B. Cooper, and which was taught him by his uncle, Sir Astley Cooper, is as follows: He applies the common black-wash upon common linen rather than lint, as he supposes the latter to produce very frequently great irritation. He orders two kinds of mercurial pills, one kind consisting of five grains of blue pill and ¼ grain of of opium each, to be taken at bed-time; and five grains of blue pill only, to be taken in the morning. If the bowels are constipated the "morning pills" only are to be taken both night and morning; but if they become relaxed, then the "night pills" are to be taken. Mr. Cooper thinks that, although iodine or the iodide of potassium may suspend the symptoms for a time, they do not eradicate the poison entirely from the system, or secure the patient from future attacks. A further continuance even of this remedy seems in many instances to increase the violence of the symptoms. In sloughing phagedæna mercury must be withheld; the remedies are the local application of nitric acid and the internal administration of opium. (Mr. Bransby Cooper, p. 247.)

In persons who have suffered from secondary ulcers, ulcers of the bones, &c., and who have become exceedingly weak and emaciated, give (along with the preparations of mercury, of which the iodide may be preferred) the phosphate of lime in doses of fifteen to twenty grains during the day. (Dr. Beneke, *Lancet, April* 19, 1851, p. 434.)

Syphilitic Periostitis.—Iodide of potassium for this disease certainly deserves the name of a specific, the chief drawback to it is, that its effects are so evanescent. To obviate this, mercury may be given with it, or a short alternate course of each, and then using only tonic means, resume the mercurial and iodine treatment again if necessary. (Dr. R. B. Todd, p. 94.)

## AFFECTIONS OF THE EYE AND EAR.

Cornea, *Specks and Opacities of.*—Under the continued use of gently stimulating applications, as the nitrate of silver, many of those depositions which apparently seriously compromise distinct vision for life, may be made slowly but ultimately entirely to disappear. The proper laminated tissue seems to be capable of enlarging its vascular resources for its support under disease, and for the subsequent removal of diseased products to such an extent, that, if it has itself escaped disorganization, it is able, under favourable circumstances, completely to resume its transparency. (Dr. R. Hamilton and Mr. B. Bell, p. 262.)

Entropion.—This disease, occurring on the lower eyelids of old persons suffering from ophthalmia, and for which an operation has generally been performed, has been treated successfully in many instances by the application of collodion, which, by the contraction it causes, overcomes the relaxation of the integument, and the eyelid resumes its normal position. (Mr. W. Bowman, p. 264.)

False Membranes.—[For the description of a small and beautiful instrument for the removal of false membranes from the eye, introduced by Mr. W. R. Wilde, of Dublin, see p. 260.]

Glycerine *in Deafness.*—Glycerine may be applied with tolerable hope of success when the surface of the auditory canal is hard and inelastic, shining, and of a whitish appearance; if the natural secretion be wanting, and the membrana tympani be not painful to the touch.

The canal must be first cleansed by a little cotton wool and warm water, and then rubbed with dry cotton. The glycerine is then applied on cotton wool soaked with it, care being taken to diffuse it over the surface of the tympanum. (Mr. T. H. Wakley, p. 269.)

Nasal Polypi.—Pass a piece of catgut from the nostrils to the mouth, to which is fastened a piece of soft and dry sponge, corresponding in size when firmly compressed to the narrowest part of the nasal passage. then gently draw it forwards by the posterior fauces through the nose, and the whole of the morbid growths will commonly be brought along with it. (Dr. D. Mc Ruer, p. 187.)

Ophthalmic Diseases.—Employ tannin in the form of pommade; in thick mucilage; in fine powder; and especially in the form of a concentrated solution, one part to three of water. The affections in which this application has proved most successful have been acute and chronic blenorrhœa, œdematous swelling of the conjunctivæ, vegetating granulations, vascular and ulcerative affections of the cornea, and especially pannus. (M. Hairion, p. 263.)

Shortsightedness.—Induce a contraction of the iris by means of the extract of ginger, rubbing it over the whole forehead for five or ten minutes with the view of acting upon the fifth pair of nerves. The effect of this contraction is permanent. (Dr. A. Turnbull, p. 268.)

## MIDWIFERY AND DISEASES OF WOMEN.

Chlorosis.—Wheaten bread is said to be rendered much more nutritive for chlorotic patients, by adding a small quantity of sulphate of iron. In this way alone, it can be capable of forming a substitute for meat, (M. Martens, p. 382.)

Ergot of Rye.—Dr. Meigs, of Philadelphia, only uses ergot of rye at the moment or just before the birth of the child; in order to secure, if possible, a permanent and good contraction of the womb after labour, in women who are known in their preceding labour to have been subject to alarming hemorrhage. (p. 319.)

Purulent Discharges *from the Uterus*.—Inject a solution of chloride of zinc gr. j to the ℥j, every six or eight hours. (Mr. E. A. Lloyd, *Lancet*, Dec. 28, 1850, p. 700.)

Remittent Menstruation.—The above term is applied to those cases of menstruation which are brought nearer to, and tending to run into each other. These cases have lately been treated very successfully by Dr. Tilt, by the sulphate of quina combined with the tincture or extract of henbane, and applying belladonna plasters to each of the ovarian regions. (Dr. E. J. Tilt, p. 304.)

## MISCELLANEA.

Anæsthesia.—Dr. T. Cattell thinks the following principle, being in all cases acted upon in the induction of anæsthesia, would obviate most of the dangers attendant thereon, viz., that no anæsthetic agent should be allowed ingress to the lungs of a higher specific gravity than the air we breathe. (p. 431.)

Aperient Solution.—Professor Mettauer, in an article on constipation, speaks in the highest praise of the following aperient solution:—℞. Aloes soc. ʒiiss; sodæ supercarb. ℥vj; aquæ Oiv; sp. lavend. co. ℥ij. After digesting for fourteen days, the clear liquor may either be decanted off or allowed to remain. Age improves both the taste and power of the solution. It should be given about half an hour after dinner, and supper. The common dose is ʒj, although it may be increased to ℥j. (p. 378.)

Cod-Liver Oil.—Thinking it owing to its non-absorption, that the oil sometimes appeared to loose its efficacy, M. Loze, a naval surgeon, combined it with a mucilage containing pancreatic juice, which thus forms an artificial chyle. He states it to be thus completely and readily absorbed, and in phthisis its effect more directly obtained. (p. 376.)

Feeding-Bottle.—[A description of the "Biberon," or new feeding-bottle for infants, invented by M. Darbo, of Paris, and introduced into this country by Mr. Elam, of Oxford Street, will be found at p. 378.]

Inhalation.—Two kinds of inhalers, a large and a small variety, have been lately described, for the purpose of the introduction of medicinal substances into the system by inhalation. They are mentioned as being more particularly adapted for the administration of opium. (Dr. J. Snow, p. 424.)

Iron, *Phosphate of.*—Two specimens, one solid, the other fluid, have been introduced, of phosphate of iron dissolved in the metabasic acid in a boiling state, and allowed to cool. If exposed to the air for a day it hardens, but can be made at once into pills, by means of liquorice powder or flour. It is stated to be superior to the other preparations of iron. Dose, one to two grains, three times a day. (Dr. Routh, *London Journal of Medicine,* March, 1851, p. 270.)

*Ammonio-Acetas Ferri.*—Dissolve one drachm of iron wire in half an ounce of hydrochloric acid, mixed with an equal quantity of water (by measure); then add half a gallon of water, and precipitate with five ounces of liquor potassæ; set aside for twenty-four hours; draw off the supernatant liquor with a syphon; fill again with water, and repeat the process a third time. Lastly, collect the precipitate on a linen filter; dissolve the oxide thus prepared in two ounces of strong acetic acid, and make up the measure to ten ounces with distilled water; set aside for twenty-four hours, and filter. To every twenty ounces of the filtered liquor add half a drachm of strong liquor ammoniæ. Dose, ten minims to half a drachm. (Mr. A. G. Roper, p. 374.)

*Syrupus Ferri Acetatis.*—Dissolve two pounds of sugar in ten ounces of water, in a water bath; to the syrup, whilst hot, add eleven ounces of the acetate of iron, prepared as above (without the ammonia); when cold filter through paper. Dose, twenty minims to one drachm. (Mr. A. G. Roper, p. 374.)

POISONING *by Arsenic.*—Wash out the stomach, by means of the double action stomach pump, with a solution of chromate of iron or alumina, or a mixture of permanganate of potassa solution, or with hydrate and acetate of ferric oxide, or with hydrate and acetate of alumina. By these compounds the soluble arsenious acid is immediately converted into insoluble arsenic acid, or into the insoluble sesquiarseniate of alumina, iron, or chrome. Ten grains of the permanganate of potassa may be mixed with half a pint of the aluminous emulsion, under which circumstances, its irritant action would be very trifling, not more than that of an ordinary sulphate of zinc emetic. (Mr. W. Odling, p. 400.)

QUININE, *without its Bitterness.*—To deprive quinine of its bitterness, combine ten grains of it with two grains of tannic acid. (Dr. R. H. Thomas, p. 424.)

STOMACH-PUMP.—[A description and wood-cut of a new form of stomach-pump introduced by Dr. W. Falconer, of Bath, will be found at p. 379.]

# INDEX TO VOL. XXIII.

PAGE.
Abscess, congenital, of the rectum, Mr. Erichsen's case of .. .. 210
Absorption, M. Bernard's experiments on .. .. .. .. 386
——— power of the cold douche in promoting or arresting .. .. 385
Acetate of potash, Dr. G. Bird on its use in rheumatic fever .. .. 47
*Adams* Mr. J., on the treatment of deep-seated nævi .. .. .. 182
Ague, cases of, treated by Dr. Warburg's fever drops .. .. .. 374
Albuminuria, M. Blot on the coincidence of eclampsia with .. .. 165
Anæsthesia, on a newly-recognised principle in the induction of .. .. 431
Anæsthetic, Dr. Aran on the Dutch liquid as a local .. .. .. 430
——— medication, Dr. Aran on .. .. .. .. .. 431
Anæsthetics, use of in the treatment of acute rheumatism .. .. 51
Anasarca, Dr. C. J. B. Williams on the treatment of .. .. .. 47
Aneurism, Prof. Miller on the treatment of .. .. .. .. 343
——— of the radial artery, Prof. Syme's case of .. .. .. 177
*Annan* Mr. R., on an apparatus for hare-lip .. .. .. .. 184
Antimony, tartarized, its use in insanity .. .. .. .. 110
Aperient solution, Prof. Mettauer's .. .. .. .. .. 377
Apoplexy, Prof. Bennett on .. .. .. .. .. .. 69
*Aran* Dr., on the use of anæsthetics in acute rheumatism.. .. .. 51
——— on the use of chloroform in lead-colic.. .. .. .. 146
——— on the use of Dutch liquid as a local anæsthetic .. .. 430
Arsenical poisoning, Mr. W. Odling on the nature and treatment of .. 400
Arsenic, Mr. L. Bullock on the best preparation of .. .. .. 354
——— Mr. T. Hunt on the use of in lupus .. .. .. .. 357
Arteries, Mr. Skey's method of incision for exposing .. .. .. 178
Artery, radial, Prof. Syme on aneurism of .. .. .. .. 177
Asthma, Dr. R. B. Todd's observations on .. .. .. .. 127

*Balman,* Mr., on cancer cells in the urine .. .. .. .. 44
Bandage, spiral, its use in varicose veins and ulcers of the leg .. .. 347
*Barnes,* Dr. R., on fatty degeneration of the placenta .. .. .. 404
*Bazin* M., on the treatment of itch .. .. .. .. .. 367
*Beck* Dr. T. S., his case of encephaloid disease of the peritoneum .. 322
——— on the cause of the contractions of the uterus .. .. 285
——— on the distribution of the nerves of the uterus .. .. 274
——— on the movements of the uterus.. .. .. .. 279
——— on the state of the nerves during pregnancy .. .. 277
*Behr* Dr., in his case of twin-birth .. .. .. .. .. 320
Belladonna, its use in scarlet fever .. .. .. .. .. 16
*Bellingham* Dr O'B., on the cause of motion of the blood .. .. 118
*Bennett* Prof., on apoplexy .. .. .. .. .. .. 69
——— on cerebral and spinal softenings .. .. .. 56
——— on the effects of stimulus in nervous diseases .. .. 68
——— on leucocythemia .. .. .. .. .. 1
——— on the diagnosis of nervous diseases .. .. .. 60
——— on the laws regulating nervous diseases . .. .. 65
*Bennett* Mr., on the use of yeast in malignant scarlet fever .. .. 18
*Bernard* M , his experiments on absorption .. .. .. .. 386
——— on the absorption of alimentary substances . .. .. 140
Biberon, a new feeding bottle .. .. .. .. .. .. 378
*Bird* Dr. Golding, on the use of acetate of potash in rheumatic fever .. 47
——— Dr. James, on the pathology and treatment of rheumatism .. .. 414
Blood, Dr. Bellingham on the cause of motion of .. .. .. 118
———Dr. J. Paxton on the disintegration of .. .. .. .. 30

PAGE.

Blood, Prof. Bennett's case of leucocythemia, a disease of the 1
———and blood vessels, Messrs. Paget, Jones, and Simon on the state of in inflammation 325
———on the nature of the fibrin of, and its relation to diseases 24
*Borelli* M., on the treatment of encysted tumours with iodine 370
*Bourguignon* M., on the treatment of itch 365
Bowels, Dr. E. Wells on the treatment of obstruction of 137
*Bowman* Mr. W., on the use of collodion in entropion 264
*Brachet*, M. on the treatment of lead colic 360
*Blot* M., on the coincidence of eclampsia and albuminuria 165
Brain, Mr. J. Swan on the course of sensation to and from 92
——— its condition in fever, Dr. H. Sandwith on 12
*Brodie* Sir B. C., on a peculiar affection of the shoulder joint 340
——————— on inflammation of the synovial membranes of joints 339
*Brown* Mr. I. B., his mode of treating ovarian dropsy 312
——————— on diphtheritis 134
Brucine, its use in lead palsy 111
Buboes, gangrenous, on borax as an application for 259
*Budd* Dr., on the male fern as a remedy for tape worm 141
*Bullock* Mr. L., on the best preparation of arsenic, and on the chemical composition of Fowler's solution 354
Burns and scalds, Dr. S. Crompton's report on 421

Cæsarean section, Dr. C. West's case of, with remarks 287
——————— Dr. H. Oldham's case of 290
Cancer, Dr. P. Redfern's remarks on 42
——— Mr. G. M. Humphry on 35
Cancerous and scrofulous diseases, on the points of resemblance between 41
Cannabis indica, its use in tetanus 359
Cantharides, its use in obstinate ulcers 410
*Casper* Dr., on the influence of the hour of the day on births and deaths 320
Caustic potash, Dr. B. G. Darley on the use of 373
*Cattell* Dr. T., on a newly recognised principle in the induction of anæsthesia 431
Cerebral and spinal softenings, Prof. Bennett on the pathology of 56
———symptoms, without cerebral lesion, Dr. R. B. Todd's case of 100
*Chambers* Dr. T. K., on corpulence 351
Chloroform, its use in chorea 81
——— its use in lead-colic 146
Cholera, Dr. J. Taylor on the origin and propagation of 432
———Mr. W. J. Cox on the results of different methods of treatment of 438
———in its relations to sanitary measures 442
Chorea, Dr. Hughes on the use of sulphate of zinc in 78
——— M Gassier on the treatment of, by frictions with chloroform 81
Cleft-palate, Mr. W. Fergusson on 186
Cod-liver oil, new mode of administering 376
Collodion, its abortive power on small pox 366
——— its use in certain cases of entropion 264
Convulsive diseases, Dr. C. B. Radcliffe on 81
*Cooper* Mr. B. B., on retention of urine from stricture 238
——————— on the electric moxa in promoting cicatrization 368
——————— on the operation for fistula in ano 201
——————— on the treatment of syphilis 247
Cornea, on specks and opacities of the 262
Corpulence, Dr. T. K. Chambers' remarks on 351
*Coxe* Dr. E. J., on ipecacuanha, with a formula for syrup 376
*Cox* Mr. W. J., on the results of different methods of treating cholera 438
Creosote, Mr. W. B. Kesteven on, as a remedy in diarrhœa 144
*Crompton* Dr. S., his report on burns and scalds 421

*Darley* Dr. B. G., on the treatment of nævi and small varices 180
——————— on glandular enlargements treated by caustic potash 373
Deafness, Mr. T. H. Wakley on glycerine in certain forms of 269

PAGE.
Degenerations of the system, Mr. Paget on .. .. .. .. 18
Delirium, Dr. R. B. Todd on the danger of moving patients in .. .. 105
Diagnosis of nervous disorders, Prof. Bennett on .. .. .. 60
Diarrhœa, on the use of creasote in .. .. .. .. .. 144
Diphtheritis, Mr. J. D Brown on .. .. .. .. .. 134
Dislocations, Mr. Skey on the reduction of .. .. .. .. 168
——— of the humerus, Mr. Skey on .. .. .. .. 169
*Dorvault* M., on the properties of iodine .. .. .. .. 367
Douche, cold, Dr. C. F. Sloan on its power in promoting or arresting absorption 385
Dropsy, ovarian, Mr. Brown on the treatment of .. .. .. 312
*Duffin* Mr. W. E., his case of ovariotomy .. .. .. .. 321
Dutch liquid, its value as a local anæsthetic .. .. .. .. 430

Ear, Mr. J. Toynbee on the structure of .. .. .. .. 410
Eclampsia, M. Blot on its coincidence with albuminuria .. .. .. 165
*Eddows* Mr., his case of traumatic tetanus .. .. .. .. 408
*Effenberger* Dr., on borax as an application to gangrenous buboes .. .. 259
Electric moxa, Mr. B. B. Cooper on its efficacy in cicatrization of ulcers .. 368
Emmenagogue, Japanese, Dr. Williams on .. .. .. .. 381
Encephaloid disease, Dr. C. Kidd on .. .. .. .. .. 43
——— of the peritoneum, Dr. T. S. Beck's case of .. .. 322
Entropion, Mr. J. C. Toshach on the use of collodion in .. .. .. 264
Ergot of rye, Dr. Meigs' remarks on .. .. .. .. .. 319
*Erichsen* Mr. J., his case of congenital abscess of the rectum .. .. 210
——— his case of lithotomy .. .. .. .. .. 241
Erysipelas, Dr. Wilson and Mr. M. B. Gallwey on .. .. .. 51
Eye, Mr. W. R. Wilde on the removal of false membranes from .. .. 260
—— concentrated solution of tannin in affections of .. .. .. 263
—— on the advantage of neutral-tint glasses in defending .. .. 267

*Falconer* Dr. W., on a new stomach pump .. .. .. .. 379
*Faraday* Mr , his discovery of the magnetic properties of oxygen gas .. 396
Fat, Dr. T. K. Chambers on excess of .. .. .. .. .. 351
*Fergusson* Mr. W., his remarks on cleft palate .. .. .. .. 186
——— his remarks on hare-lip .. .. .. .. 183
Femur, Mr. Guthrie's case of encephaloid tumour of .. .. .. 170
Fern, the male, a remedy for tape-worm .. .. .. .. 141
Fever, Dr. W. Jenner on the different forms of .. .. .. .. 5
——— continued, Dr. H. Sandwith's remarks on .. .. .. 12
——— rheumatic, on the use of acetate of potash in .. .. .. 47
——— scarlet, Dr. J. Gardner on the use of belladonna in .. .. 16
——— malignant scarlet, Mr. Bennett on the use of yeast in .. .. 18
Fibrin of the blood, on the nature of .. .. .. .. .. 24
Fistula in ano, Prof. Syme's case of .. .. .. .. .. 198
——— Mr. B B. Cooper's remarks on .. .. .. .. 201
——— cases of at Guy's Hospital .. .. .. .. 202
Fistula treated by platinum wire made red-hot by a galvanic battery .. 397
Fowler's solution, Mr. L. Bullock on the chemical composition of .. .. 354
Fracture of the thigh, case of .. .. .. .. .. .. 167

*Gallwey* Mr. M. B., on erysipelas .. .. .. .. .. .. 51
Ganglion, Dr. J. Maund on the use of the lanceolate director in .. .. 370
*Gardner* Dr. J., on the use of belladonna in scarlet fever.. .. .. 16
*Gassier* M., on the treatment of chorea by frictions with chloroform .. 81
Glandular enlargements treated by caustic potass .. .. .. 373
*Glover* Dr. R. M., on the properties of picrotoxin .. .. .. 105
Glycerine, its use in certain forms of deafness .. .. .. .. 269
Gonorrhœa treated by chloride of zinc injections .. .. .. 257
Gonorrhœal ophthalmia, on .. .. .. .. .. .. 263
Granulating surfaces, Prof. Miller on the protection of .. .. .. 361
*Graves* Dr., on the effects produced on the stomach by grief .. .. 145
*Green* Mr. T. J., on the use of belladonna in scarlet fever .. .. 17
*Guthrie* Mr. C. G., his case of encephaloid tumour round the femur .. 170

PAGE.
*Hairion* M., on a solution of tannin in affections of the eyes .. .. 263
*Hancock* Mr. H., on internal strangulation of the intestines .. .. 189
*Hare* Mr. S., his remarks on the pulmometer .. .. .. .. 136
Hare-lip, Mr. W. Fergusson's remarks on .. .. .. .. 183
——— Mr. E. A. Lloyd's case of .. .. .. .. .. 184
*Hawkins* Mr. Chas., his remarks on ovariotomy .. .. .. .. 309
——— on lithotrity .. .. .. .. .. 244
Heart, Mr. Simon on valvular diseases of .. .. .. .. 115
Hemorrhage, Mr. Skey's mode of arresting .. .. .. .. 178
——— arterial, Prof. Syme's rules for suppression of .. .. 175
Hemorrhoids, Mr. Skey's operation for .. .. .. .. .. 225
——— treated by platinum wire made red-hot by a galvanic battery.. 397
Hernia, Mr. H. Hancock's cases of .. .. .. .. .. 189
——— Mr. T. P. Teale's trusses for .. .. .. .. .. 188
——— operations without opening the sac .. .. .. .. 193
*Hilton* Mr. J., his case of fistula in ano .. .. .. .. 202
——— his case of ulcers external to the sphincter ani .. .. 212
——— his case of ulcers within the sphincter ani .. .. .. 214
——— his case of ulcer in the groin .. .. .. .. 251
*Hogg* Mr C., on the use of quinine in neuralgia.. .. .. .. 91
*Horn* Mr., on some chemical phenomena of respiration .. .. .. 135
*Horner* Dr. C. W., his case of lactation in a male .. .. .. 320
Hour of the day, influence of on the birth and death of man .. .. 320
*Hughes* Dr., on the use of sulphate of zinc in chorea .. .. .. 78
Humerus, Mr. Skey on dislocation of .. .. .. .. .. 169
*Humphry* Mr. G. M., on fibrous tumours .. .. .. .. 291
——— on malignant tumours or cancers .. .. .. 35
——— on the resemblance between cancerous and scrofulous diseases .. .. .. .. .. .. .. 41
*Hunt* Mr. T., on the use of arsenic in lupus .. .. .. .. 357
——— on syphilitic eruptions .. .. .. .. .. 253
*Hutchinson* Dr. J., on the treatment of pulmonary consumption .. .. 119
Hydrocele, Prof. Syme on the operation for .. .. .. .. 245

Imperforate uterus in a case of pregnancy .. .. .. .. 412
Inflammation, Messrs. Paget, Jones, and Simon on .. .. .. 336
——— of the synovial membranes of joints, Sir B. C. Brodie on .. 339
——— state of the blood and blood vessels in .. .. .. 325
Inhalation of medicinal substances, Dr. J. Snow on .. .. .. 424
Inhalers, Dr. Snow's new .. .. .. .. .. .. 426
*Inman* Dr. T., on microscopical examinations of the urine .. .. 166
Insanity, on the use of tartarized antimony in .. .. .. .. 110
Intestines, Mr. H. Hancock on internal strangulation of .. .. .. 189
Iodognosis, M. Dorvault's remarks on .. .. .. .. .. 367
Iodine, M. Borelli on its use in encysted tumours .. .. .. 370
——— M. Dorvault on the medical properties of .. .. .. 367
Ipecacuanha, Dr. E. J. Coxe's remarks on .. .. .. .. 376
Iron, Dr. Routh's new preparation of .. .. .. .. .. 382
——— Mr. A. G. Roper's formulæ for preparations of .. .. .. 379
——— mode of administration, in food .. .. .. .. .. 382
Itch, MM. Bazin and Bourguignon on the treatment of .. .. .. 365

*Jenner* Dr. W., on the different forms of fever .. .. .. .. 5
*Johnson* Dr. G., his remarks on renal disease .. .. .. .. 160
Joint, shoulder, Sir B. C. Brodie on a peculiar affection of .. .. 340
Joints, Prof. Miller on the removal of loose cartilages from .. .. 342
——— synovial membranes of, Sir B. C. Brodie on inflammation of .. 339

*Kesteven* Mr. W. B., on creosote as a remedy for diarrhœa .. .. 144
Key-tse-Sing, a Japanese emmenagogue .. .. .. .. .. 381
*Kidd* Dr. C., on encephaloid disease .. .. .. .. .. 43
Kousso employed with success in tænia solium .. .. .. .. 141

PAGE
Labour, difficult, Dr. C. Stuart's case of .. .. .. .. 286
Lactation in a male, Dr. C. W. Horner's case of .. .. .. .. 320
Lacteals, on the absorption of alimentary substances by the .. .. 140
Lanceolate director, Dr. J. Maund on the use of in ganglion .. .. 370
*Lawrence* Mr., his remarks on ovaritomy .. .. .. .. 309
Lead-colic, Dr. Aran on the use of chloroform in .. .. .. 146
——— M. Brachet on the treatment of .. .. .. .. 360
Lead-palsy, use of brucine in .. .. .. .. .. .. 111
—— Dr. R., his analysis of 108 cases of ovariotomy .. .. .. 308
——— his dissection of an ovarian tumour .. .. .. .. 321
*Lee* Mr. E., on functional paralysis .. .. .. .. .. 85
Lemon juice, Dr. G. Owen Rees on its use in rheumatism .. .. .. 49
Lepra, syphilitic, Dr. R. B. Todd on the treatment of .. .. .. 406
Leucocythemia, Prof. Bennett on .. .. .. .. .. 1
Lithotomy, Mr. Erichsen's case of .. .. .. .. .. 241
Lithotrity, Mr. C. Hawkins' remarks on .. .. .. .. 244
*Lloyd* Mr. E. A., his case of hare-lip .. .. .. .. .. 184
——— on the treatment of gonorrhœa by chloride of zinc injections 257
*Loze* M., on a new mode of administering cod-liver oil .. .. .. 376
Lupus, Mr. Hunt on the use of arsenic in .. .. .. .. 357

*Mackenzie* Mr. J., on the treatment of prolapsus recti .. .. .. 223
*Mackmurdo* Mr. G., on neutral-tint glasses for the eyes .. .. .. 267
*Maclagan* Dr. D., on the extirpation of erectile tumours by the cautery .. 183
Malignant growths, remarks on operations for .. .. .. .. 44
*Marshall* Mr., his mode of treating fistula and hæmorrhoids .. .. 397
*Martens* M., on the mode of administering iron in food .. .. .. 382
*Martin-Solon* M., on the male fern as a remedy for tape-worm .. .. 141
Matter, Dr. Thomson on the divisibility of .. .. .. .. 389
*Maund* Dr. J., on the use of the lanceolate director in ganglion .. .. 370
*Mc Ruer* Dr. D., on the removal of nasal polypi .. .. .. .. 187
*Meigs* Dr., on ergot of rye .. .. .. .. .. .. 319
Membrana tympani, Mr. J. Toynbee on the structure of .. .. .. 310
Menstruation, remittent, Dr. E. J. Tilt on the treatment of .. .. 304
*Mettauer* Prof., his aperient solution .. .. .. .. .. 377
Microscope and exploring needle as means of diagnosis .. .. .. 358
——— necessity for its use in cerebral and spinal softening .. .. 56
Milk, artificial, Dr. Panum on the formation of .. .. .. .. 382
*Miller* Prof., on the protection of granulating surfaces .. .. .. 361
——— on the removal of loose cartilages from joints .. .. 342
——— on the treatment of aneurism by pressure .. .. .. 343
——— on the treatment of periostitis .. .. .. .. 344
——— on the treatment of tetanus .. .. .. .. 359
*Montgomery* Dr. W. F., his case of intra-uterine polypus .. .. .. 306
*Mulder* M., on the effect of acetic and hydrochloric acids in protein .. 118

Nævi, Dr. B. G. Darley on the treatment of .. .. .. .. 180
—— deep-seated, Mr. J. Adams on the treatment of .. .. .. 182
Nasal polypi, Dr. D. Mc Ruer on removal of .. .. .. .. 187
Nerves, uterine, Dr. T. S. Beck on the distribution of .. .. .. 274
——— on the state of, during pregnancy .. .. 277
Nervous diseases, Prof. Bennett on the diagnosis of .. .. .. 60
——— on the effects of stimulus in .. .. 68
——— on the laws regulating .. .. .. 65
Neuralgia, Mr. C. Hogg on the use of quinine in .. .. .. 91
*Nevins* Dr., his case of tetanus in an infant .. .. .. .. 76

*Odling* Mr. W., on the nature and treatment of arsenical poisoning .. 400
Oil, animal, on the antiquity of its use in scrofula .. .. .. 46
*Oldham* Dr. H., his case of cæsarean section .. .. .. .. 290
Operations for malignant growths, remarks on .. .. .. .. 44
Ovarian dropsy, Mr. Brown on the treatment of .. .. .. .. 312

PAGE.
Ovarian tumours, Dr. R. Lee's dissection of .. .. .. .. 321
———————— Dr. E. J. Tilt on .. .. .. .. .. 313
Ovariotomy, Dr. R. Lee's analysis of 108 cases of .. .. .. 308
——————— Mr. W. E. Duffin's case of.. .. .. .. .. 321
——————— Mr. C. Hawkins' remarks on .. .. .. .. 309
——————— Mr. Lawrence's remarks on .. .. .. .. 309
Oxygen gas, Mr. Faraday on the magnetic properties of .. .. .. 396

*Paget* Mr. J., on the degeneration of different parts of the system .. 18
*Panum* Dr., on the formation of artificial milk .. .. .. .. 382
Paralysis, agitans, on on the treatment of .. .. .. .. 89
——— functional, Mr. E. Lee on .. .. . .. .. 85
*Paxton* Dr. J., on the disintegration of the blood .. .. .. 30
Pericarditis, Dr J. Taylor on some of the causes of .. .. .. 390
Periostitis, Prof. Miller on the treatment of .. .. .. .. 344
——— syphilitic, Dr. R. B Todd's case of .. .. .. .. 94
Peritoneum, Dr. T. S. Beck's case of encephaloid disease of .. .. 322
Phthisis, Dr. J. Hutchinson on the treatment of.. .. .. .. 119
Picrotoxin, Dr. R. M. Glover on the properties of .. .. .. 105
Placenta, Dr. Barnes on fatty degeneration of .. .. .. .. 404
——— Dr. Quain do. do. .. .. .. .. 405
——— Dr. C. J. B Williams on do. .. .. .. .. 405
Poisoning by arsenic, on the treatment of .. .. .. .. 400
*Pollard* Mr., his case of tape-worm treated by the male fern .. .. 143
Polypus, intra-uterine, Dr. W. F. Montgomery's case of .. .. .. 306
*Porta* Prof., on diseases of, and operations on the thyroid gland .. .. 361
Pneumo-thorax, with tubercular consolidation of the lung .. .. 122
Pregnancy, Dr. T. S. Beck on the state of the nerves during .. .. 277
————— with imperforate uterus, Dr. Roe's case of .. .. .. 412
Prolapsus recti, Mr. J. Mackenzie on the treatment of .. .. .. 223
Protein, on the effects of acetic and hydrochloric acid on.. .. .. 118
Pruritus, Dr. Tournie on the treatment of .. .. .. .. 246
Pulmometer, Mr. S. Hare's remarks on the .. .. .. .. 136
Pulse, Dr. R. B. Todd's remarks on the.. .. .. .. .. 111
Purulent absorption, Mr. S. Solly on .. .. .. .. .. 54

Quina, sulphate of, its use in remittent menstruation .. .. .. 304
Quinine, Mr. C. Hogg on its use in neuralgia .. .. .. .. 91
——— mode of depriving its bitterness .. .. .. .. 424

Rectum, congenital abscess of.. .. .. .. .. .. 210
*Redfern* Dr. P., his remarks on cancer.. .. .. .. .. 42
—————— on the diagnosis of tumours of the neck.. .. .. 349
*Rees* Dr. G. Owen, on the treatment of rheumatism by lenon juice .. 49
Renal disease, Dr. G. Johnson on some varieties of .. .. .. 160
—— elimination, Dr. J. S. Sutherland on .. .. .. .. 146
Respiration, Mr. Horn on some chemical phenomena of .. .. .. 135
Rheumatism, Dr. G. O. Rees on the use of lemon juice in .. .. 49
—————— acute, Dr. Aran an anæsthetics in the treatment of .. .. 51
—————— tropical, Dr. J. Bird on the pathology and treatment of .. 414
*Robinson* Dr., his case of fibrous tumour in conjunction with pregnancy .. 302
*Roe* Dr. E. T., his case of pregnancy with imperforate uterus .. .. 412
*Routh* Dr , on a new preparation of iron .. .. .. .. 382

*Sandwith* Dr. H., on continued fever and the state of the brain in fever .. 12
*Schmidt's* M., remedy for tape-worm .. .. .. .. .. 143
Scrofula, on the antiquity of the use of animal oil in .. .. .. 46
Scrofulous disease, Mr. G. M. Humphry on its rememblance to cancer .. 41
Sensation, Mr. J Swan on the course of, to and from the brain .. .. 92
Shortsightedness, Dr. Turnbull's remedy for .. .. .. .. 268
*Simon* Mr. John, on valvular disease of the heart .. .. .. 115
*Skey* Mr. F. C., his operation for hæmorrhoids .. .. .. .. 225

PAGE.

*Skey* Mr. F. C., on exposure to the air, a means of arresting hemorrhage .. 178
——— on the mode of incision for exposing arteries .. .. 178
——— on the reduction of dislocations generally.. .. .. 168
——— ——— of the humerus .. .. 169
——— on the treatment of varicose veins .. .. .. 179
*Sloan* Dr. C. F., on the cold douche in promoting or arresting absorption .. 385
Small pox, on the abortive power of collodion in .. .. .. 366
*Snow* Dr. J., on the inhalation of various medicinal substances .. .. 424
*Solly* Mr. S., his remarks on purulent absorption .. .. .. 54
Sphincter ani, Mr. J. Hilton's case of ulcers external to the .. .. 212
——— ——— irritable ulcer within the .. .. 214
Spinal and cerebral softenings, Prof. Bennett on.. .. .. .. 56
Splint, Mr. Wood's improved, for fracture of the thigh .. .. .. 167
*Startin* Mr. J., on the advantages of an elastic bandage in varicose veins and ulcers of the leg .. .. .. .. .. .. 345
Stimulus, Prof. Bennett on its effects in nervous diseases. .. .. 68
Stricture of the urethra, Dr. Makenzie on Prof. Syme's operation for .. 230
——— Mr. B. Cooper on retention of urine from .. 238
——— Mr. R. Wade's observations on the treatment of .. 236
——— Mr. T. H. Wakley's new instrument for .. .. 232
——— Prof. Miller on Prof. Syme's operation for .. 230
——— Prof. Syme on the operation for .. .. 225
Stomach, Dr. Graves on the effects of grief upon .. .. .. 145
——— pump, Dr. W. Falconer's new .. .. .. .. 379
*Stuart* Dr. C., his case of difficult labour in consequence of twins joined by the breast .. .. .. .. .. .. .. 286
*Sutherland* Dr. J. S., his remarks on renal elimination .. .. .. 146
*Swan* Mr. J., on the course of sensation, volition, and the involuntary power to and from the brain, the oblong medulla, and the spinal cord .. 92
*Syme* Prof , his case of aneurism of the radial artery .. .. .. 177
——— his case of fistula in ano .. .. .. .. .. 198
——— his rules for suppressing arterial hemorrhage .. .. .. 175
——— on stricture of the urethra .. .. .. .. .. 225
——— on the exploring needle and microscope as means of diagnosis .. 358
——— on the operation for hydrocele .. .. .. .. 245
Syphilis, Mr. B. B. Cooper's remarks on .. .. .. .. 247
Syphilitic disease of the dura mater, Dr. R. B. Todd's case of .. .. 94
——— eruptions, Mr Hunt on the treatment of .. .. .. 253
——— lepra, Dr. R. B. Todd on the treatment of .. .. .. 406

Tænia, M. Martin-Solon on the male fern as a remedy for .. .. .. 141
——— M. Schmidt's remedy for .. .. .. .. .. 143
——— Mr. Wills' case of, successfully treated by Kousso .. .. .. 141
*Tait* Mr. J., on the use of tincture of cantharides in obstinate ulcers .. 410
*Taylor* Dr. J., on some of the causes of pericarditis .. .. .. 390
——— on the origin and propagation of epidemic cholera in Huddersfield 432
*Teale* Mr. T. P., his trusses for relief of hernia .. .. .. .. 188
Tetanus, Prof. Miller on the treatment of.. .. .. .. .. 359
——— in an infant, Dr. Nevins' case of .. .. .. .. 76
——— traumatic, cured by simple local treatment .. .. .. 408
*Thomson* Dr., on the divisibility of matter .. .. .. .. 389
Thyroid gland, Prof. Porta on the diseases of, and operations on .. .. 361
*Thomas* Dr. R., his method of depriving quinine of its bitterness .. .. 424
*Tilt* Dr. E. J., on ovarian tumours .. .. .. .. .. 313
——— on remittent menstruation treated by sulphate of quina .. 302
*Todd* Dr. R. B., his case of cerebral disease .. .. .. .. 100
——— his case of acute idiopathic trismus .. .. .. 70
——— his case of pneumo-thorax .. .. .. .. 122
——— his case of syphilitic disease of the dura mater .. .. 94
——— his case of tape-worm, treated by the male fern .. .. 142
——— on asthma .. .. .. .. .. .. 127
——— on the danger of moving patients in delirium .. .. 105

PAGE.
*Todd* Dr. R. B., on the pulse .. 111
——————— on the treatment of syphilitic lepra .. 406
*Tournie* Dr., on the treatment of pruritus .. 246
*Toynbee* Mr. J., on the use of tincture of cantharides in obstinate ulcers .. 410
Trismus, acute idiopathic, Dr. R. B. Todd's case of .. 70
Trusses, Mr. T. P. Teale's, for relief of hernia, remarks on .. 188
Tumours, encephaloid, Mr. Guthrie's case of .. 171
——— encysted, M. Borelli on the treatment of .. 370
——— erectile, Dr. D. Maclagan on the extirpation of .. 183
——————— Dr. Darley on in infants and children .. 180
——— fibrous, Mr. G. M. Humphry on .. 291
——————— in conjunction with pregnancy, Dr. Robinson's case of .. 302
——— malignant, Mr. G. M. Humphry on .. 35
——— of the neck, Dr. P. Redfern on the diagnosis of .. 349
——— ovarian, Dr. E. J. Tilt on .. 313
*Turnbull* Dr. A., his remedy for shortsightedness .. 268
Twin-birth, Dr. Behr's case of .. 320
Twins joined by the breast, Dr. C. Stuart's case of .. 286
Typhus, cases of, treated by Dr. Warburg's fever drops .. 374

Ulcer in the groin, Mr. J. Hilton on the treatment of .. 251
Ulcers, Mr. B. B. Cooper on the electric moxa in promoting cicatrization of .. 368
——— external to the sphincter ani, Mr. J. Hilton's case of .. 212
——— obstinate, on the use of tincture of cantharides in .. 410
——— of the leg, Mr. J. Startin on the use of the spiral bandage for .. 345
——— within the sphincter ani .. 214
Urinary sediments, Dr. Venables' observations on .. 151
Urine, Dr. T. Inman on microscopical examinations of .. 166
——— Mr. Balman on cancer cells in .. 44
——— Mr. T. H. Wakley's case of retention of .. 241
Uterus, Dr. T. S. Beck on the cause of the contractions of .. 285
——————— on the distribution of the nerves of .. 274
——————— on the movements of .. 279
——— imperforate, in a case of pregnancy .. 412

Varicose veins, Mr. Skey's method of treating .. 179
——————— Mr. J. Startin on the use of the spiral bandage for .. 345
*Venables* Dr., his remarks on urinary sediments .. 151

*Wade* Mr. R., his observations on the treatment of permanent stricture .. 236
*Wakley* Mr. T. H., his case of retention of urine from injury .. 241
——————— his instruments for stricture of the urethra .. 232
——————— on the use of glycerine in certain forms of deafness .. 269
*Warburg's* fever drops, cases of typhus and ague treated by .. 374
*Wells* Dr. E., his mode of treating obstruction of the bowels .. 137
*West* Dr. C., his case of cæsarean section .. 287
*Wilde* Mr. W. R., his scissors for the removal of false membranes from the eye 260
*Williams* Dr. C. J. B., on anasarca treated by puncturing the legs .. 47
——— Dr. E., on the successful administration of the Key-tse-Sing .. 381
*Wills* Mr. W., his case of tænia successfully treated by kousso .. 141
*Wilson* Dr. A., his remarks on erysipelas .. 51
*Wood* Mr., his improved splint for fractured thigh .. 167

Yeast, its use in the treatment of scarlet fever .. 18

Zinc, sulphate of, its use in chorea .. 78
——— chloride of, its use in gonorrhœa .. 257

D. I. ROEBUCK, PRINTER, 14, BANK STREET, LEEDS.